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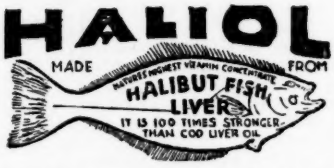

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Vol. III *Calcutta : August, 1934* No. 12

GENERAL ANAESTHESIA AND CARBON DIOXIDE*

TECHNIQUE OF ADMINISTRATION AND PHYSIOLOGICAL MAINTENANCE

F. N. TARAPORVALA, L.C.P.S. (BOM)
Bombay

EARLY HISTORY OF GENERAL INHALATIONS

Looking back to the prehistorical days in the chapter of anaesthesia, it was, 1,500 years ago, that the Chinese used a preparation of hemp or *May-Yo*, as it was called, to dull their pains. Since then earnest and constant efforts have had been directed towards the research of such agents that would be smarter in action and in safety, in inducing insensibility, whether total or partial. *Elixir vitae*, or philosopher's stone was amongst the agents then used ; till finally the progress resulted in production of anaesthesia by inhalation of intoxicating vapours. Vapours of *mandragora*, *opium* and other sedatives came then into play ; and their inhalations put the patients into deep sleep during operations which were then of short duration. In 1829, HICKMAN reported experiments in which he had put animals into a state of unconsciousness by *carbonic acid*. LOEWY and ZUNTZ found their laboratory animals into narcotic stage when carbon dioxide of the alveolar air was allowed to accumulate in high concentration. SIR JAMES CRICHTON-BROWN, in his "*Doctor's Second Thoughts*" mentions of BULLEIN, a great English physician, who at the end of the sixteenth century mentioned the possibilities of putting patients into trance for operation by inhalation of *mandragora*. JOHN BAPTISTA PORTER of Naples, speaks of blocking up of fortresses of senses and inducing of profound sleep by some powerful aura. *Chloroform*, an English invention, soon followed the invention of *ether* by MORTON, a dentist of Boston, to whose invention the present anaesthetists owe a great debt of gratitude. SIR JAMES, very humorously puts Edinburgh students' favourite song, known as "*Ether Song*" composed by SIR DOUGLAS MACLAGGAN :—

"Case first, a lady aged eighteen,
Both nervous like and funky,
Came to the dentist of the Queen,
A-grinning like a monkey.

Quoth she—"I'm in a dreadful fix,
I've got a tooth that's raging,
And ever since last night at six,
The pain there's no assuaging."

Says he, "Oh that you needn't mind,
We have got a new invention,
Which if you'll try it you will find,
To pain is a prevention."

He gave the ether ; fast asleep
At once she was at ease sir,
The tooth was in a basin deep
Before you could say, "Please sir."

*Read at the Scientific Sessions of the 10th All India Medical Conference held in Bombay, December, 1933.

She woke and said, "Now do begin,
I'll keep my head quite steady,"
Says he,—a wipin' of her chin,
"Your tooth is out already."

At first she thought the dentist joked ;
And then she thought she whacked,sir,
Till in her cheek her tongue she poked
And found it was a fact, sir."

Progress in the Art and Science of Anaesthesia

The advance made in the art and science of administration of anaesthesia during the last twenty years tells upon a professional anaesthetist, to keep his progress upto the day and hour, to study and practise all the latest devices, in general inhalation, and regional and spinal anaesthesias. Whatever the device may be, it is aimed towards the greater safety of the patient and increased facility to the surgeons. The advancement in research on this science has not only reformed the art but brought a complete renaissance specially in the last few months by the discovery of the intravenous narcotics :—viz., *sodium amytal, pernocton,* and *sodium evipan* which are chiefly the derivatives of the *barbituric acid group.* Each of them claims special advantages over the other.

Inspite of the new drugs and methods general inhalation anaesthesia still holds its place because at the hands of an expert and experienced anæsthetist its technique is capable of modification and individualisation, within the limits of safety facilitating the work of the surgeon.

Opinions still differ as to the selection of the mode of administration of an anaesthetic drug, viz., general inhalation, spinal or caudal injections, or intravenous administrations. Each of the methods has however, its advantages and disadvamtages.

Let us briefly consider the value of individual class :—

Spinal Anaesthesia :—Smith reviews its value as follows : (1) There is no irritation to bronchial and pulmonary mucous membrane, (*ii*) post-operative nausea and gas pains are less. (*iii*) complete relaxation of muscles is obtained, requiring less manipulation of the organs. (*iv*) fluids can be given during and immediately after the operation. (*v*) patients and surgeons can co-operate. (*vi*) anaesthesia can be suitable for cases of hypertensive heart diseases.

The dangers of spinal anaesthesia, which is however contraindicated in operations above the diaphragm, are

i. Extreme lowering of blood pressure,
ii. Brain and spinal cord disorders,
iii. Skin infections about the site of spinal puncture,
iv. The psychic attitude of patients who object to consciousness,
v. Sometimes inefficient anaesthesia for long cases.
vi. Sometimes want of reaction, or sometimes sudden toxicity.
vii. Sudden collapse and death without any premonitory signs.
viii. Severe headaches for months as complained by patients.
ix. Psychic fright leading to a severe fall of blood pressure.
x. Myelitis after spinal anaesthesia.
xi. Paresis or peripheral neuritis as its sequela.

Lewis Loeser of Newark, encountered five cases of peripheral neuritis following spinal anaesthesia. Various kinds of cord lesions following spinal anaesthesia, such as conus lesion with retention of urine and faeces, and painful anaesthesia about the anus have been observed by J. Boisseau and J. Michelsen. Nonne and Demme described a death, sixteen months after herniotomy, under spinal anaesthesia. He found on autopsy "conus myelitis, delicate adhesions between the cord and the thickened dura and ascending cord degeneration."

General Anaesthesia :—the dangers of inhalation anaesthesia are but a few :—

(i) Pulmonary complications. This can be avoided by warm ether administration. I have administered at Mission Hospital in Miraj, warm ether

vapour produced from ether can surrounded by hot water, on a few hundred abdominal operations and it was noted that the frequency of post-anaesthetic pneumonia was nil in the series.

ii. Metabolic disturbances and dehydration.

iii. Changes in blcod chemistry with toxicity.

The advantages are :

i. Operations above the diaphragm can be performed.

ii. Children, neurotic men and women, old and debilitated can be operated upon.

iii. Unconsciousness to the patients who demand it.

iv. Facility to the surgeon to meet with sudden emergencies arising from sudden bleeding etc.

Intravenous narcosis.—It is still in experimental stages.

Hence it will be noticed that general inhalation anaesthesia preferably stands in forefront. It is needless to say that its reputation requires a careful and exact technic and control. Professor Uffreduzzi of the University of Turin, at the IXth International Congress of Surgery on the subject of *anaesthesia narcosis*, advocated preference to general anaesthesia, as administered by specially trained anaesthetists, with improved and modern apparatus that permits the simultaneous administration and the exact determination of dosage of oxygen and carbon dioxide which are so useful both during and after anaesthesia. Anaesthetists who have a long experience in this art know that patients vary enormously in their reactions. In spite of the same height, weight and age, the dosage differs. The great safety of inhalation anaesthesia is that the strength of the anaesthetic can be changed instaneously from time to time according to the reaction of the patient. But once a drug is inside the body it can not be easily recovered, such as in spinal, caudal, and intravenous administrations. If one attempts to procure anaesthesia by one single dose method it is natural that it may be just right in one patient, insufficient in another or frightfully profound in the third.

In the present day, prior to inhalation anaesthesia, one prefers to administer a dose of hypnotic or narcotic as premedication. Formerly I used to inject in a normal adult for a major operation a dose of *morphia* with or without *atropine* as needed. I do not intend to comment over the drug, but in preference to it I find great advantage in oral administration of Pulv. sodium amytal. About six grains in adults one hour before the operation constitutite a suitable dose according to my experience at the Yamunabai Nair Hospital. Children are given about three grains. The patients when brought to the operation table are in trance practically ; and it has been observed that though the induction is delayed yet the maintenance is very satisfactory ; and the quantity of anaesthetic drug used is comparatively less. It is also observd that the patients have a good deep sleep without any untowardness for some hours after operation, with a little in between awakenings. Unfortunately I have no space to speak of the drug at length in this paper. Another useful basal narcotic producing sleep and unconsciousness without the knowledge of the patient prior to inhalation of anaesthesia is *sodium-evipan.* In small doses when injected intravenously it is a good adjunct to inhalation anaesthesia.

The present paper, based on the accumulated experience of various workers in the field of anaesthesia and on my own experience of a few thousand cases, will, I hope, be of some practical use in the successful and safe administration of highly poisonous drugs for anaesthesia according to the merits of each individual case. However experienced and grey one may be in one's art, one should never forget that every additional case one handles might be an exception. As no two human beings are alike in look and their aspects of life, no two cases may be similar in the management and response during narcosis. One may resist the action of the drug though a decided weakling ; whereas the other may prove susceptible to the same dosage however strong he be in built and in body. Hence the management of anaesthesia, specially inhalation anaesthesia, depends on the following factors :—

i. The type and class of the patient.

ii. The severity of the operation.

iii. The response of the patient to a normal steady administration.

Respiration plays an important role in the management of general anaesthesia. Respiration is an act caused by exchange of gases and nervous stimuli, the ryhthmic balance of which is maintained by a team of normal physiological factors. Any undue interference puts it off its balance chiefly due to improper exchange of gases, mainly oxygen and carbon dioxide. The latter, far from being a waste product of metabolism, plays an active part in stimulating the respiratory center in spite of its elimination through an act of exhalation in far greater an amount than inhaled in the air. Man normally at rest breathes air which contains about 0.04% of carbon dioxide, consuming about seven litres of air per minute. If however carbon dioxide to the strength of 5 to 10% is inhaled along with the inspired air, there is definite stimulation of respiration, which increases in rate and depth.

Carbon Dioxide as Physiologically found in the Body

Let us consider the physiological importance of carbon-dioxide as normally found in the lungs, in blood, and in tissues. As stated by MacDowall the following table is the average obtained from a normal individual.

Percent by Vol.	Atmosphere	Expired air	Alveolar air
Oxygen	20.96	16.0	13—14
Carbon dioxide	0.04	4.4	5—6
Nitrogen	79.0	79.6	80

It is true that in average healthy adult the oxygen content in the alveolar air is from 13 to 14 per cent ; and carbon dioxide from 5 to 6 per cent. Similar proportions of these gases at every phase of respiration during anaesthesia should be maintained for upkeep of physiological respiration. The excess is to be liberated, or the reduction should be provided for. All conditions otherwise arising such as dyspnoea, acapnœa, hyperpnoea and apnoea are to be regarded abnormal.

We have noted that 8 or 10% of carbon dioxide in the inspired air produces hyperpnoea and distress under the normal conditions of the system. James G. Poe suggests an experiment showing that the respiratory movements are diminished when the normal amount of carbon dioxide in the system is reduced. This is easily observed by taking a few deep breaths and exhaling in quick succession, which effectively washes out, so to speak, the carbon dioxide of the lungs and the system generally. If this is followed by taking a deep breath of oxygen there will be no impulse to breathe for 5 or 6 minutes, or until the carbon dioxide has accumulated again in sufficient quantity to stimulate the respiratory center to action, when the normal impulse to breathe will return and regular respiration will be established.

The transport of carbon dioxide from the active tissues to the lungs without any marked changes in the hydrogen-ion concentration of the blood is accomplished by the combination in the capillaries of the carbon dioxide with alkaline bases to form sodium bicarbonate, which breaks up again on reaching the lungs. Some amount of carbon dioxide is carried in the blood plasma and a little is combined with the proteins.

MacDowall looks upon the input and output of oxygen and carbon dioxide as a physical process depending on differences of partial pressure. The active tissues liberate heat and carbon dioxide which hastens the reduction of oxyhaemoglobin. The blood when circulating through the lungs loses both carbon dioxide and heat and is oxygenated again. Thus in the lungs and in the blood taking up of oxygen brings about the process of giving out of carbon dioxide and *vice versa*. MacDowall in his physiology gives us a very illustrative table summarising the main facts in relation to the two gases—oxygen and carbon dioxide. The arrows indicate the direction in which the changes occur :—

	Carbon Dioxide				*Oxygen*			
	Vol.		Press.		Vol.		Press,	
Veins ..	56	at	46	.. ..	15	at	40	
Lungs ..	—		40	.. ..	—		100	
Arteries ..	52	„	40	..	18.5	„	100	
Tissues ..	+55	„	+46	.. ..	12	„	35	

As regards the exchange of gases, it takes place according to the requirements of the body

at rest and at activity. As HALDANE pointed out we know that the muscles control the respiration and the circulation by virtue of carbon dioxide and lactic acid produced by them. We have learnt that the oxygen intake in an average man at rest is 300 to 400 c.c. per minute. It varies enormously at different circumstances. The respiratory quotient, according to MAC. DOWALL, is a ratio between the amount of carbon dioxide expired and the amount of oxygen inspired. He also quotes the following table which gives us the average quantities of these gases in the expired and inspired air.

	Inspired Air	*Expired Air*
Oxygen	20.96 vol. per cent.	16.03 vol. per cent.
Nitrogen	79 „ „	79.57 „ „
Carbonic acid	.04 „ „	4.4 „ „

and varying volumes of water vapour. Thus carbon dioxide in expired air is several times greater in volume than in inpired air. The respiratory quotient is 0.9, as about 5 vols. of oxygen are taken up and 4.5 vols. of carbon dioxide are given away. This is also liable to vary according to circumstances.

PHYSIOLOGIOAL FUNCTIONS OF INHALATION ANAESTHESIA ; (*viz ;* SPECIALLY CHLOROFORM, ETHER, AND NITROUS-OXIDE)

During the narcosis of *chloroform* the blood undergoes definite changes. The arterial blood becomes poorer in haemoglobin and thus the carriage of oxygen by the red blood corpuscles is diminished due to the presence of chloroform. This shows that chloroform is carried by the red blood corpuscles. It is only in deep narcosis or in concentrated solutions that it enters the plasma. Hence carbon dioxide in blood some what increases in volume. It is at the stage of induction and within the first few minutes of administration that blood becomes "too rich in chloroform". This may by some means or other cause the cessation of respiration due to failure of respiratory center. As the time passes chloroform is liberated from the blood into the tissues of the body and the chloroform quotient falls. From the tissues it is returned to the alveoli in the lungs from whence it is thrown off during exhalation. Thus the equiblirium between chloroform, oxygen and carbon dioxide is the principal phenomena to be maintained during narcosis. Thus during chloroform narcosis there is :—

(1) definite poverty of oxygen in blood ;
(2) lowering of the blood pressure ;
(3) weakening of the cardiac muscle and paralysis ;
(4) relaxation of the arterioles ;
(5) paralysis of the neuro-muscular mechanism ;
and
(6) depression of the respiratory center specially at the stage of concentration of vapour.

These conditions vary chiefly during mode of administration, open, close, or semi-close, and even in depth of anaesthesia produced in every case. In ight narcosis, there is return of surgical stimulus, and it causes increase in frequency and pulse. In large doses or concentrated vapour it first produces reflex stimuli by irritation due to exchange of gases, there is asphyxiation, and then depression follows either by stages, or even suddenly. Again changes occur due to unsteady administration. Every individual patient has his own standard of susceptibility and respiratory strength. Surgical reflexes produced by direct irritation of nerves, orsensitive organs and rough manipulation produce conditions of shock. Hemorrhage, massive or continuous, also plays a great part in the maintenance of respiratory and circulatory balance, due to excessive liberation of oxygen and carbon dioxide in the blood. Position of of the patient, flexion or hyperextension of the neck, plays an important role in the fluctuation of gases in the respiratory movements. I have found women as a rule good patients for anaesthesia for all types of surgical manipulation. They maintain regularity and rhythm in breathing. Trendelenburg position aids respiratory center by hyperaemia of the brain ; and rhythmic stertorous respiration is available. During retching or vomiting under anaesthesia, respirations become either shallow, or obstructive and irregular. Pulse is often very slow and imperceptible.

Ether as a rule does not depress the respiratory and circulatory centers in the brain.

It stimulates respiration, frees the mucous secretion in the bronchi, and keeps up the tone of the cardiac muscle. Ether has practically very little effect on blood and its composition.

The presence of *nitrous-oxide* in blood has very little influence on corpuscles. It is readily soluble in blood and is equally rapid in its elimination, specially when oxygen supply is added in anaesthesia.

Modes of Maintenance of Carbon-dioxide during Inhalation Anaesthesia

Having properly reviewed the physiological findings and changes during anaesthesia, we will now discuss some methods of administration of inhalation anaesthesia and maintenance of carbon dioxide according to the respiratory changes that we experience at different stages.

During induction of anaesthesia :—The induction of general anaesthesia specially by open method should be begun without undue excitement on the part of the patient. The patient should be taken into confidence by preanaesthetic examination and pleasant tactics. During induction he be advised to count numbers, or be engaged in talks having no bearing on operation ; the school children should be asked to recite some familiar songs. The anaesthetist should himself recite such favourite nursery rhymes or vernacular school poems and be an amicable company to the child. On such suggestions the patients generally co-operate with the anaesthetist. They generally breathe normally and freely, if no irritative concentrated vapour is held before their nose. The respiration is liable to alter into acapnoea, if a period of excitement ensues and fast breathing follows. Again nervous individuals often breathe deeply and quickly thus depleting the carbon dioxide of the blood and producing acapnoea. Certain highly sensitive patients breathe slow and shallow ; and ultimately produce the same condition. This can be remedied by allowing them to rebreathe ; or by judicious administration of carbon dioxide or mixture of 5% carbon dioxide and 95% oxygen, to induce rapid induction. Rebreathing produces high concentration of carbon dioxide and stimulates the increased depth of respiration.

It is also to be remembered that hyperpnoea may ensue due to painful reflex stimulus following an early incision or undue traction during operation. While in some cases deceptive condition of quiet breathing, relaxation and loss of pupillary reflex, may follow, some prolong the induction by a shallow type of respiration. Children who take a fright and struggle during induction may suddenly drive themselves into acapnoea and shock resulting in apnoea. If this type of acapnoea with reflex stimuli be extreme and respiration be such as to threaten cyanosis, breathing of air should be promoted by exercising the tongue, normal respiration should be restored and apnoea prevented.

Under no circumstances the anaesthetist should make haste with the induction so as to alter the physiological respiratory maintenance. Such haste leads to unbalanced anaesthesia which endangers the life of the patient and causes hindrance to the surgeon.

During maintenance of anaesthesia :—It is of utmost importance that undue reflex disturbance or an incision should be avoided until proper maintenance is established. At the same time the patient should not be allowed to go under unduly deep narcosis from the beginning. With a regular supply of anaesthetic suitable to each individual, and with avoidance of all obstructions in the respiratory tract by right position of the neck, clearance of throat secretion, prevention of the falling of the relaxed jaw, and the tongue, anaesthesia should be maintained long enough for the necessary operative manipulations. Action of premedication as an aid to, or impediment to the maintenance, should also be taken into consideration. Premedication of morphia or other hypnotics are found as a rule to be of great value in cases of prolonged deep narcosis, if given at a short period before the start of anaesthesia. Too long a period between the premedication and the operation causes a depressed condition of the respiratory system, prolongs induction rather than shortening it ; and the shallow respiration prevailing during mainteanance is a hindrance. Undue large doses also cause the same action.

Regarding prolonged premedication I like to cite a surprising experience. A Gujarati lady, aged about 30 years, was being operated on for a small uterine fibroid. She had a premedication of morphia gr. $\frac{1}{6}$ cum atropine gr. 1/180. Over an hour and a half had elapsed before she was taken for the operation. Pure anaesthetic chloroform was used for her induction which was prolonged a bit due to shallow breathing. However she was relaxed and the operation was begun. After the peritoneum was opened pure anaesthetic ether by open drop method was continued as it was a rule with me then. Appendix was found, it was dissected out off its adhesions and clamped with a crushing forceps when a deep sigh from the patient attracted my attention. I lifted the mask to investigate the condition. To my horror, and to the surprise of the operating staff the patient spoke in a stammering speech in Gujarati which meant, "Do not give me chlorform or I'll die". It seemed afterwards that she had made this request to the nurse in the ward. Needless to say that I was the target of all the eyes in the theatre, and I hurriedly closed the mask to push on more ether, when my surgeon instructed me not to worry as her abdomen was quite relaxed. In a couple of minutes the patient was found deep under. No untoward event occurred during the anaesthesia that lasted for about an hour.

I have often found that premedication used long before the start of anaesthesia depresses the respiratory centre and masks the stages of anaesthesia. *Sodium amytal* grs. vi, orally administered to an average adult produces deep sleep within an hour's time ; and though induction is delayed yet the maintenance is smooth and very little quantity of anaesthetic is required.

Hence, regulation in depth and rate of respiration should be as physiological as possible. This can be obtained by a constant supply of suitable quantity of anaesthetic, and regulation of gaseous exchange with a proper supply of carbon dioxide by rebreathing and oxygen from air. Any undue change in respiration should be prevented rather than be allowed to appear and then be remedied.

If a reflex surgical stimulus changes respiration in depth and rate and produces laryngeal spasm depleting carbon dioxide apnoea followed by acapnæa results. At this stage rebreathing should be prompt ; and if apnoea results, carbon dioxide should be allowed to accumulate within the alveoli. If apnoea threatens cyanosis, artificial respiration or a supply of 4-6% carbon dioxide with oxygen be given. The patient should not be allowed to drift to hypercapnia or hyperpnœa, both conditions being unsuitable for further anaesthesia.

Incomplete anaesthesia, or cessation of administration during operation, rouses the patient and a troublesome irregularity in breathing supervenes. If the anaesthetist fails to maintain the required depth of anaesthesia in an individual, the anaesthesia varies once too deep and the next moment too light. Various surgical procedures require definite modes of administration, i.e. oral, rectal, intratracheal etc. Choice of an anaesthetic agent, and the depth of anaesthesia required for the necessary surgical manipulations in operations on rectum, cervix, tongue, tonsils, liver, kidneys, intestines, and spleen should be carefully made.

Great care should be taken while anaesthetising patients with obstructed respiration due to some obstructing agents or growths within the laryngeal and naso-pharyngeal passages. It should be remembered that in such cases patients have higher concentration of carbon dioxide within the lungs and blood. NEGUS has pointed out that chronic laryngeal obstruction causes a rise in carbon dioxide percentage in the alveolar air. When tracheotomy is performed this rise falls to normal, so that the respiratory centre no longer receives the stimuls of the higher concentration of carbon dioxide. Apnoea may occur and patient may die of anoxaemia.

R. M. WATERS cites the example in the J. A. M. A. April, 22, 1933, of an infant patient in whom carbon dioxide was administered when contraindicated. He says that the infant was given an ether anaesthesia accompanied by marked respiratory obstruction. Colour was kept pink by high tension of oxygen maintained in the atmosphere, which passed the obstruction with each respiratory effort. A

carbon dioxide oxygen mixture was foolishly administered on the release of the obstruction at the end of the operation, without consideration being given to the already high blood carbon dioxide present in association with the respiratory obstruction. Both respiratory and circulatory depression were immediate and the baby died within a short time. He appreciates the possible damage which may occur from prolonged respiratory obstruction, yet he believed that carbon dioxide added at the end of this anaesthesia was no small factor in causing the death.

I do not agree that in the above case administration of carbon dioxide was injudicious. The death was probably due to the failure of the respiratory and the circulatory centres from the sudden release of the high tension of gases. The sudden depletion of the concentrated carbon dioxide to which the centres were accustomed, is enough to cause the fatality.

Lack of knowledge of the therapeutic action, of the drug used, on respiration and circulation, produces a dangerous state. When to use a certain anesthetic drug, how to use it with a perfect aseptic technique to the advantage of both the patient and the surgeon—these facts should be at the tip of the fingers of the anaesthetist. He should make the best use of his knowledge to maintain the physiological aspects inspite of the pathological conditions already existing in the patient. Rectal anaesthesia, or intravenous anaesthesia, or intratracheal insufflation would be an ideal mode of administration for operations on the face and neck. In such a case there would be no frowning or grumbling between the operator and the anaesthetist. It is also desirable to observe asepsis when the anesthetist has to come in contact with the operative field of the surgeon. He should put on sterilised gloves and all his paraphernalia liable to come in contact with the field of operation should necessarily be sterilised.

It will not be out of place if I mention that unfortunately in most parts of India, the anaesthetist is regarded as a subordinate to the surgeon whose whims and wishes he has sometimes to conform to regarding the exact mode of anaesthesia and the anaesthetic to be used. Even an experienced anaesthetist is put off his route. Shock is the ultimate result, either due to improper technic or insufficient anaesthesia. Hence the anaesthetist should always exercise independent judgment during his work, and demand all facilities in the interest of his patient. Meddlesome surgery, undue delay, or unwanted haste that would upset the balance of anesthesia should be boldly objected to by him. At the same time he should maintain his reputation by good team work with the surgeon. He should independently be capable of rectifying the untoward condition in time.

The responsibility of the anaesthetist does not terminate with the completion of the operation. The condition of the patient on leaving the theatre may require his attention in the ward. Hypodermoclysis or any post-anaesthetic medication should be properly ordered and administered in due time without delay. Respiratory complications should be avoided. I must sound a note of warning that a little lack of attention or ignorance on the part of the nurse or assistant may produce disastrous results during the last stages of the operation. Sudden elevation of the head while putting the bandage, or a wrong bandage round the neck and jaw would result in death of the patient ; also rough transport of the patient has been found to lower the blood pressure and to give rise to shock. Want of attention towards the patient while retching or vomiting during recovery has had grave results. Compression of the chest or a wrong bandage over the neck may produce asphyxia and cyanosis. Even death may occur in this condition.

Now let us seperately consider the factor that may cause acapnoea, and how to prevent it. JAMES POE, in his "*Modern Practical Anaesthesia*" deals on such conditions individually. He rightly believes that the causes of acapnœa with the socalled open methods of administration are :—

(1) Excitement during induction ;

(2) Hyperpnœa due to pain and deep reflex stimuli as in making the incision too early, trauma of the parietal peritoneum, and traction of the mesentery etc. ;

(3) Artificial respiration specially when prolonged beyond the necessities of oxygenation ;

(4) Exposure of abdominal viscera from the surface of which carbon dioxide is exhaled ;

(5) Anoxaemia however caused, increases the respiration ;

(6) Diminution in the production of carbon dioxide and increase in its elimination during ether administration.

Acapnia, he says, can be prevented by limiting the elimination of carbon dioxide in the open methods of administration by

(1) Continuous partial obstruction of respiration by retarding the exhalation of carbon dioxide ;

(2) Morphia premedication which reduces the sensibility of the respiratory centre and thus prevents excessive respiration from excitement during induction, from painful stumuli in complete anaesthesia, and from overventilation in general anesthesia *per se.*

(3) The brevity of the anaesthetic ; the operation being completed before acapnoea has time to develop ;

(4) Re-inhalation of some of the exhaled air retained in the mask and rich in carbon dioxide.

Ether when used should always be administered by the semi-open method ; so that a regular breathing may be obtained by a maintenance of the required tension of carbon dioxide throughout the surgical operation. Premedication specially of *sodium amytal* or *morphine* can be given with advantage in cases where prolonged administration of ether is necessary.

Carbon dioxide can be administered through a tube under the mask to relieve the acapnœa if it does not improve by simple rebreathing.

Nitrous-oxide-Oxygen-Ether : On Ohio Monovalve Machine, I have had satisfactory maintenance in operations of long duration and deep reflexes. Nitrous oxide with a fair amount of oxygen breathed through the bags at constant pressure and percentage brings induction in about 2 to 3 minutes. For complete relaxation of the abdomen, ether with reduced oxygenation is a very good anaesthetic specially when the rebreathing valve is finely adjusted. It produces increased respiration ; preserves body heat ; and the blood pressure is slightly raised. The advantages of this gaseous mixture and closed administration are manifold. There is no nauseating effect as in open ether during induction. The period of induction is short. The gases and ether are administered at a known pressure shown by meters and gauges attached to each. The recovery is also as rapid as induction. There is hardly any untoward post-anaesthetic effect.

JOHN S. LUNDY of Rochester reports in the J. A. M. A., March 18, 1933, that carbon dioxide has been used in the Mayo Clinics in approximately 40,000 cases, in which nitrous-oxide-oxygen was given. To maintain normal metabolism, he recommends carbon dioxide not exceeding about 5% in the total mixture in the breathing bag, as it is beneficial rather than harmful, and the regulating effect of carbon dioxide on respiration may be obtained when a mixture of nitrous-oxide and oxygen is used, without reducing the oxygen contents of the mixture below the necessary level for satisfactory anaesthesia and oxidation. Usually carbon dioxide is added to the nitrous oxide-oxygen mixtures only intermittently during anaesthesia for the purpose of controlling respiration.

INTRAVENOUS ANAESTHESIA

A regards intravenous anaesthesia I may say a few words in this paper. I have not ventured to use any new drug other than *sodium evipan* which was only supplied to me in October 1933. In a few of my cases I found that a sudden entrance of the drug into the blood produced sudden depletion of carbon dioxide with suspension of the repsiration. The condition however disappeared after a little rebreathing by covering the face with a mask or a towel and at the same time keeping the airway clear.

The reports of DRS. JARMAN AND A. LAWRENCE ABEL, regarding sodium-evipan and those from the Anaesthetic Committee, Medical Research Council, are very encouraging.

It is our experience so far that carbon dioxide whether accumulated in the alveolar air by rebreathing, or chemically supplied through the cylinders, undoubtedly stimulates the respiratory center. It is not only useful

during induction and manintenance of general anaesthesia, but also helpful in preventing post-anaesthetic complications by promoting a rapid elimination of the anaesthetic specially ether.

MACKENZIE'S experience of carbon dioxide administration in combination with general anaesthesia, in 5,000 cases has been also recorded in the J. A. M. A., July 2, 1932. He has pointed out three prominent advantages that accrue to the surgical patient :—

> (1) The prophylactic action of carbon dioxide against the onset of respiratory complications, irrespective of the anaesthetic agent ; (2) the protection afforded to the patients who come for operation with concomitant respiratory disability, and (3) the curative action of carbon dioxide when post anaesthetic respiratory complications have occurred.

For purpose of observation, the cases are arranged in four groups. In the first and the largest group, carbon dioxide to the extent that appeared advantageous to the patient, was administered in the operation room during induction, maintenance and recovery stages of gas-oxygen and ether anesthesia. In the second group, carbon dioxide was used in the induction and recovery stages of deep ether anaesthesia. In the third group carbon dioxide was used as a prophylactic against respiratory complications during the recovery stages of anaesthesia in the operating room and in the ward after the operation. In the fourth group, carbon dioxide was administered as a therapuetic agent in cases of post-anaesthetic respiratory complications. MACKENZIE further prefers the administration of carbon dioxide and oxygen in the wards, at periodical intervals. Such administration is to be continued if there is any evidence of respiratory complications. The percentage of carbon dioxide, the duration and the frequency of administration should be regulated according to the toleration of the individual patient.

R. M. WATERS, in his correspondence with the Editor, J. A. M. A., April, 22, 1933 questions the "entire safe use of carbon dioxide." He quotes experiments performed by various physiologists and anaesthetists to show that carbon dioxide, upto a concentration of 10 per cent. stimulates the respiration as well as circulation whereas concentrations of 15 to 30 percent stupifies the subjects. He further reminds us of the warning scattered throughout the literature that concentration of more than 10% carbon dioxide in the inspired atmosphere produces unconsciousness in normal animals and men. To produce respiratory depression higher concentrations were required. All investigators agree that circulation is markedly stimulated by slight increases in carbon dioxide, while depression of cardiac muscle may accompany higher concentrations. The lack of agreement as to the exact concentration required for circulatory and respiratory stimulation as suggested by BROWN, may be due to an intolerance of the subjects to an increased carbon dioxide tension for a long time. WATERS is convinced that variations in reactions noted by several workers, in different normal individuals under identical conditions, are greatly exaggerated. He seems to have encountered trouble while inducing ether anaesthesia by carbon dioxide and oxygen mixtures, as it resulted in respiratory depression and arrest. WATERS in the same letter has refered to the death of an infant to whom carbon dioxide was administered. He believes that carbon dioxide is much more toxic than *ethylene or nitrous oxide*. He also admits that carbon dioxide is an extremely useful drug, but a powerful as well as seriously toxic agent when misused, for the patients coming in the operation room present themselves in various stages of physiological disturbance ; the respiratory center is in a state of either over stimulation or marked depression and the acid-base balance is tossing between either acidosis or alkalosis.

CONCLUSIONS

(1) General inhalation anaesthesia is preferable to spinal and other methods of anaesthesia as it is a safe procedure in the hands of an experienced and careful anaesthetist. There may be some temporary risks, with care, however, easily avoidable.

(2) The surgeon, his assistants and the anaesthetist must work in a team.

(3) The anaesthetist's decision as to the choice of anaesthetic agent, the mode of administration, pre-and post anaesthetic medication should be supreme ; and he should as well be given all responsibilities.

(4) By previous visits and examinations the anaesthetist should gain confidence of his patient.

(5) An adequate attention to the anaesthetist's wants will greatly facilitate the work of the surgeon.

(6) Proper maintenance of anaesthesia principally depends upon :—

(*a*) Individual characteristics of the patient.

(*b*) Choice of the anaesthetic agent and mode of administration.

(*c*) Physiological variations of respiration and circulation during anaesthesia.

(*d*) Gaseous exchanges and depletion.

(7) Pulmonary ventilation should be controlled and regulated, from the beginning to the end, by ensuring rebreathing and a balanced supply of the gases. During the close of the operation deetherisation should be advantageously carried out.

(8) All the technical details of the art of anaesthesia should be observed as a routine in every individual case, for the complete safety of the patient, and for good team work.

(10) Supplementary use of gases such as carbon dioxide or oxygen, or gaseous mixtures, required during induction, maintenance, and post-anaesthetic complications should be judiciously made. The proper concentration of such gases within the alveoli of the lungs, blood, and tissues of the body should be maintained during anaesthesia by semi close methods, rebreathing, and regulation of respiration.

(11) Carbon dioxide has proved to be a good adjuvant during induction, in as much as, it prevents its prolongation, and makes up for the CO_2 deficiency in blood. In maintenance, it stimulates the respiratory and circulatory centers, prevents exhaustion, and keeps up the acid base equlibrium. Moreover it prevents and relieves acapnœa, In shock, and respiratory failure, it is a valuable stimulant. Carbon dioxide used after operation hastens the elimination of the anaesthetics, increases the depth and rate of respiration and lessens post-anaesthetic nausea and chances of pulmonary complications. Injudicious use of it may result in tragedy. Higher concentrations over 5% should not be used for purposes of anaesthesia. Carbon dioxide should be either stocked in 5% sol. with 95% of oxygen in a common cylinder, or preferably in available seperate cylinders—"Carbetha", Briggs's parklet holder, or Yandell Henderson's apparatus.

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PROLAPSE OF THE UTERUS*

Its Relation to Age and Parity in Bengali Women

SWADESH BASU

Calcutta

To find out a relation of age and parity with prolapse of the uterus, 597 cases were collected from the hospital records of the Chittaranjan Sevasadan, Calcutta, between the years 1926 and 1933. These cases were purely Bengalis and almost all of them required plastic operations.

The ignorance of many patients about their actual age and the lack of acurate history of the previous labours were the main difficulties met with in collecting the necessary data.

After going through the available literature on this subject, it was discovered that our figures were in some aspects different from those of Spiegel, Andrews, Von Graaf, Smith Graves and Pemberton and others.

Incidence of age

In our series we found the following data :

Age	No	Percentage
16—20	58	9.71
21—25	129	21.60
26—30	147	24.62
31—35	79	13.23
36—40	87	14.57
41—45	35	5.86
46—50	41	6.86
51—55	11	1.84
56—60	7	1.17
Above 60	3	0.50

The youngest case was 16 years old, mother of a one-year-old child and the oldest case was 70 years old a mother of 9 children, last child being 32 years of age.

Spiegel gives the following data :

Age	Percentage
15—40	17.5
40—60	65
Over 60	17.5

He adds that the proportion of women over 60 in Russia is about 8.1% as against the 38.5% between the years 15 and 40. Thus (the probability of having prolapse at 60 to that at the age 15—40 is 1 : 4.

Andrews' figures show a mean age of 40.7 the largest number being treated between 30 and 40 years of age.

Von Graaf states that there is a rapid increase in the incidence of prolapse up to the 29th year. The greatest number of prolapses appear between the 45th and 55th years. After this there is a rapid decline in the frequency of prolapse. Postmenopausal procidentia is rare and in majority of these cases the derrangement was present or had started many years before, at the begining of or during the change of life. Prolapse develops most commonly during the climacterium at which time the tissues of the body become relaxed and less resistant.

Graves states that procidentia may occur at any age from 25 on, is more commonly an affliction of middle and later life being accelerated by physiological weakening of the pelvic supports that occur at or after the menopause.

Green Armytage presumes that 75% of parous Indian women after the age of 30 suffer from prolapse. The habits and type of labour in Indian women greatly contribute to this.

Smith Graves and Pemberton made an exhaustive study of 683 cases from the Free Hospital for Women, Brookline,Massachussetts. Their figures are as follows :

Age	Percentage
15—20	0.46
20—25	4.17
25—30	8.82
30—35	13.46
35—40	18.73
40—45	17.80
45—50	12.84
50—55	10.21
55—60	6.65
Above 60	6.81

* Published with the kind permission of Dr. B. Dr. Mukherjee, Visiting Surgeon, Chittaranjan Sevasadan, Calcutta.

The youngest case in this series was 15 years old and the oldest one was 83.

187 cases of 27.2% of patients started having symptoms of procidentia after menopause.

PAUL MESHBURG selected 128 cases for the discussion of Interposition operation for prolapse of uterus. In these cases the age incidence was as follows :

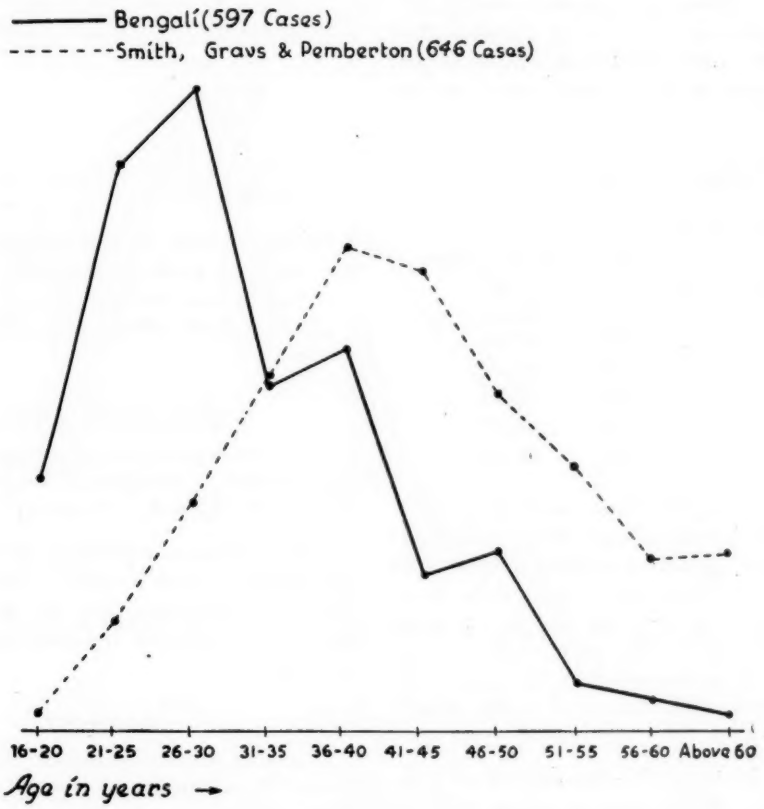
Age	Percentage
24—30	4.68
30—35	14.84
35—40	28.12
40—50	30.46
50—60	17.96
60—65	3.90

The highest incidence being 30.46% during the period of 40—50.

The most important point in the difference in the age of greatest incidence in the curves. In our series the largest number of cases (46.2%) occurred between the age 21 and 30 whereas the curve of SMITH GRAVES and PEMBERTON records the greatest number of cases (36.5%) between the 36th and 45th year. This is explained by the fact that the child bearing period is much earlier in Bengali women than in the Western from whom the data were collected. The incidence of prolapse has, therefore, a definite relation with the period of child bearing. We really fail to understand how SPIEGEL could get so small an incidence (10%)

V

GRAPHIC RECORD NO. I.



during the child bearing period ranging from 20 to 40.

That there is a rapid decline in the frequency of prolapse after menopause is a fact but the height of the curve seen in our record is certainly not the representation of the actual incidence. The reason is this : A large percentage of post-menopausal cases are really afraid of operation and so do not take admission in the hospital and in a certain percentage the low general health is a bar against any operative procedure. From an experience in the outpatients department, we are of opinion that the height of the curve should actually be higher than what is seen in the record based on 597 indoor cases.

Incidence of Parity

Our figures : (total 589 cases).

Parity	No	Percentage
Nullipara ..	8	1.35
One ,, ..	108	18.33
Two ,, ..	104	17.65
Three ,, ..	100	16.97
Four ,, ..	54	9.16
Five ,, ..	78	13.25
Above 5 ..	137	23.26

In the whole series there were 8 cases of nullipara and 5 cases having a history of abortion and miscarriage abone making a total of 13 cases i.e. 2.20%. Their ages varied from 22 to 50. 6 cases were between 22 and 30 ; 5 cases between 31 and 40 and 2 cases between 41 and 50. The youngest case was 22 years old and had a general relaxation of the whole system.

A definite history of instrumental or difficult labour was present only in about 10% of cases but the true percentage will be slightly higher than this as the detailed history of previous labours could not be elicited from many patients.

Spiegel : 10% of cases occured during the childbearing years that is between the age of 20 and 40.

Rongy, Tamis and Gordon selected 355 cases for the discussion of interposition operation on prolapse of the uterus and gave the following data :

Parity	Percentage
Nullipara ..	1.12
One ,, ..	6.47
Two ,, ..	23.09
Three ,, ..	18.59
Four ,, ..	14.64
Five ,, ..	10.14
Above 5 ..	27.04

Smith, Graves and Pemberton :

Parity	Percentage
One para ..	15.66
Two ,, ..	18.43
Three ,, ..	17.20
Four ,, ..	16.28
Five ,, ..	9.06
Above 5 ..	23.34

In these series average number of children per married patient was 3.92.

45.3% had normal labour.

45.7% had one or more instrumental deliveries.

Prolapse in a Nullipara

In a nullipara having prolapse of the uterus there exists a congenital tissue difficiency in the pelvic support. (Graves)

86% of cases of prolapse in newly born were associated with spina bifida (Bloom). Findley believes this to be a stigma of infantilism and cites the accompanying sterility as evidence.

Comment

In our series the highest figure is reached from 8 in nullipara to 108 after the birth of child showing evidently the importance of labour in the causation of prolapse of the uterus. This high figure is maintained up to the 3-para column.

In Smith Graves and Pemberton series, no nullipara case was recorded and the height is reached after the second child birth and is maintained up to the 4-para column. The number after the birth of one child is no doubt considerable.

In RONGY, TAMIES and GORDON series, there is a sudden rise after two child births and a gradual decline after that.

Our next attempt was to find out the incidence of immediate and late prolapse and in our series the interval between the last child birth and the onset of prolapse extended from two months to 44 years as follows :

Years		No	Percentage
0—1 year	..	79	13.64
1—2 years	..	89	15.37
2—3 ,,	..	55	9.49
3—4 ,,	..	37	6.39
4—5 ,,	..	51	8.80
5—9 ,,	..	117	20.20
10—14 ,,	..	74	12.78
15—19 ,,	..	28	4.83
Above 20	..	49	8.46

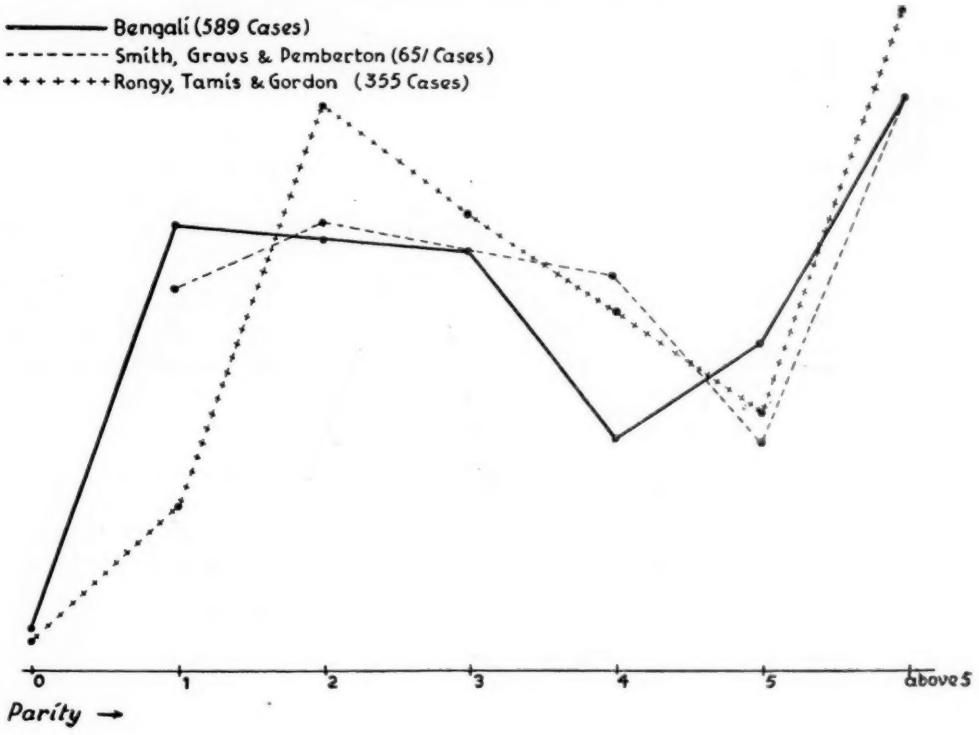
According to SMITH GRAVES and PEMBERTON, the interval in their data varied from one month to 45 years as follows :

Years		Percentage
0—1 year	..	29.51
1—2 years	..	6.74
3—4 years	..	3.03
4—5 ,,	..	2.02
5—9 ,,	..	11.80
10—14 ,,	..	11.29
15—19 ,,	..	7.92
Above 20	..	15.85

In 48% symptoms began one, month to 3 years after last labour.

In 16.6% they began 3 to 10 years later, and in 35% they began from 10—45 years later.

GRAPHIC RECORD NO. 2.



Whereas the greatest incidence appears within 2 years after last child birth in our series the summit is reached in SMITH GRAVES and PEMBERTON series within one year of the last child birth followed by a sudden fall in the frequency. The 2nd hight between the 5th and the 9th year has no special significance as it embraces a period of 5 years instead of one year.

GRAPHICAL RECORD No. 3.

FACTOR OF CONSTITUTION

Prolapse is usually but not always found in women who have had at least one child but birth trauma is not all. An inherent constitution difinitely determined for each individual at the moment of fusion of its germinal cells is a main factor. Prolapse develops most often in individual constitutionally handicapped by asthenia and infantilism.

STILLER AND P. MATHES' CLASSIFICATION

(1) Asthenico-Ptotic type—the group of women with all the characteristics of congenital weakness and looseness of the mesodermal tissues who are more likely to pay for motherhood with procidentia.

(2) The intersexual, virile women, the boyish, frail and slender girl as well as the acromagalic masculine women are less apt to fulfill the demands of reproduction without damage.

(3) The group supposed to have constitutional endocrine defficiency is also not fit for reproduction.

(4) An occult spina bifida must be considered in every prolapse occuring in a nullipara.

(5) Pyknik type—the primitive pure type is the ideal type for reproduction.

SMITH GRAVES and PEMBERTON consider that coloured women have better tissue tone and elasticity, they have higher percentage of pelvic inflammation and that majority of coloured women have contracted pelvis which bring the bony supports of the pelvic diaphragm nearer to the points of strain and torsion. All these factors combined together make the chance of prolapse in a coloured woman less frequent.

Congenitally or acquired in childhood, majority of Bengali women are of the asthenicoptotic type. Child-birth itself instrumental or normal with or without any definite trauma will cause certain amount of relaxation of the pelvic support if not of the general system in almost every mother. This is aided by the important factor of child birth—its management in Bengali women during the antinatal, intranatal and postnatal periods. The indeigenous ideas and methods of the conduction of labour in the worst room of the house, by quack midwives, under the most inconvenient circumsstances are still prevelant in this country. Cases with retroverted subinvoluted uterus and with untreated or badly treated birth injuries are very common in our outpatient's department.

CONCLUSION

I. Incidence of prolapse in Bengali women is highest

(*a*) between the 21st and the 30th year,
(*b*) after the first child birth,
(*c*) and within two years after last childbirth,

II. This period of highest incidence corresponds with the period of child-bearing;

III. The frequency of prolapse decreases as the age advances after the age of 30;

IV. The Bengali women are constitutionally and socially handicapped from the point of view of reproduction.

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STUDIES ON THE PRESENT EPIDEMIC OF CEREBROSPINAL MENINGITIS IN CALCUTTA (9.2.34 to 30.4.34)

BACTERIOLOGY—A PRELIMINARY REPORT

A. K. SEN, M.B , & A. K. HAZRA, M.B B.S., D.T.M.

(From the Laboratories of Biological Research and Experimental Therapy, Biological Dept., Bengal Chemical and Pharmaceutical Works, Ld., Calcutta)

We started our investigation on the bacteriology of the present epidemic of cerebrospinal meningitis on the 9th of February, 1934. During the period under report, all the cases of meningitis in Calcutta were more or less isolated and treated in the Carmichael Medical College Hospital, Campbell Medical School Hospital and Chittaranjan Hospital N.M.I. Through the courtesy of the authorities of the above institutions, we were able to collect 96 specimens of cerebrospinal fluid and 27 strains of meningococcus. From these we were able to isolate 95 strains of meningococcus, of which 85 strains were typed (Gordon-Murray) with the Standard type sera supplied by the Standard Laboratories (M.R.C.), Oxford.

From the annexed Protocol it will be seen that, unlike our previous report, it was not possible to place all these strains in the four Gordon-Murray types.

17 of the strains, i.e. 20% were found to agglutinate strongly with Type I serum, and 47 strains, i.e., 55.3%, with Type III ; 3 strains, i.e., 3.5% faintly agglutinated with both I & III type sera. There was not a single strain which gave even a faint agglutination with type II or IV. The remaining 18 strains, i.e., 22.2% did not give any agglutination with the type sera and, according to Second Standardization Conference, Health Organisation, League of Nations, have been classed under a group "X".

PROTOCOL I.

MENINGOCOCCUS— Macroscopic Agglutination.

No.	Date.	Strain No.	Type Sera (Oxford Standards Lab.)				Control.	Provisional Type
			I	II	III	IV		
1.	9-12-34.	C.H. 64	..	..	+++	..	..	III
2.	Do.	C.H. 61	..	..	+++	..	..	III
3.	Do.	C.H. 10	+++	..	..	..	..	I
4.	10-2-34.	C.H. 10N	..	..	+++	..	..	III
5.	Do.	C.H. 13	..	..	..	..	..	X
6.	12-2-34.	C.H. 3	..	..	+++	..	..	III
7.	Do.	C.H. 8	..	..	+++	..	..	III
8.	14-2-34.	C.H. 64N	..	..	..	..	..	X
9.	Do.	C.H. 62	..	..	+++	..	..	III
10.	15-2-34.	C.H. 10N2	++	..	..	..	..	I
11.	16-2-34.	C.H. 68	+++	..	..	..	..	I
12.	17-2-34.	C.H. 10N3	..	..	..	..	..	X
13.	18-2-34.	C.H. Ext. I	..	..	+++	..	..	III
14.	Do.	C.H. Ext. II	..	..	+++	..	..	III
15.	Do.	C.H. Ext. III	..	..	+++	..	..	III
16.	Do.	C.H. Ext. IV	..	..	..	..	..	X
17.	20-2-34.	C.H. 60	..	..	..	..	..	X
18.	Do.	C.H. Ext. II N	+	..	..	..	..	I
19.	Do.	C.H. Ext. IN	+++	..	..	..	..	I
20.	21-2-34.	C.H. Ext. N 2	..	..	+++	..	..	III
21.	22-2-34.	C.H. 70	..	..	+++	..	..	III
22.	Do.	C.H. 11	..	..	+++	..	..	III
23.	24-2-34.	C.H. 37	..	..	+++	..	..	III
24.	27-2-34.	C.H. 10 N4	..	..	+++	..	..	III
25.	Do.	C.H. 11 N	..	..	+++	..	..	III
26.	2-3-34.	C.H. 2 N	..	..	+++	..	..	III
27.	3-3-34.	C.H. 63	+++	..	+++	..	..	I
28.	Do.	C.H. 64 N 2	..	..	..	..	..	III
29.	5-3-34.	C.H. 5	..	..	+++	..	..	III

PROTOCOL—*contd.*

No.	Date.	Strain No.	I	II	III	IV	Control	Provisional Type
30.	5-3-34.	C.H. 68 N	..	..	+++	..	..	III
31.	5-3-34.	C.H. 69	+++	..	..	..	..	I
32.	Do.	C.H. 14	..	..	+++	..	..	III
33.	7-3-34.	C.H. 62N	..	..	..	..	..	X
34.	10-3-34.	C.H. 29	+	..	+	..	..	I or III
35.	10-3-34.	C.H. 54	+++	..	..	..	..	I
36.	Do.	C.H. 32N	..	..	+++	..	..	III
37.	12-3-34.	C.H. 27	..	..	+++	..	..	III
38.	Do.	C. H. 53	..	..	+++	..	..	III
39.	Do.	C.H. 25N	..	..	..	..	..	X
40.	13-3-34.	C.H. 60N	..	..	..	..	..	X
41.	Do.	C.H. 11N2	..	..	..	..	..	X
42.	15-3-34.	C H. 11N3	..	..	..	..	..	X
43.	Do.	C.H. 10N5	..	..	+++	..	..	III
44.	16-3-34.	C.H. 68N	..	..	+++	..	..	III
45.	17-3-34.	C.H. 52	..	..	..	..	..	X
46.	Do.	C.H. 65N	..	..	..	..	..	X
47.	Do.	C.H. 62N3	+	..	..	..	..	I
48.	Do.	C.H. 14N2	..	..	+++	..	..	III
49.	20-3-34.	C H. 63N2	..	..	..	..	..	X
50.	22-3-34.	C.H. 10N6	+	..	++	..	..	I or III
51.	23-3-34.	C.H. 1	..	..	+	..	..	III
52.	27-3-34.	C.H. 65N2	..	..	++	..	..	III
53.	31-3-34.	C.H. 11N5	+	..	++	..	..	I or III
54.	2-4-34.	C.H. 66	..	..	+++	..	..	III
55.	6-4-34.	C.H. 66N	..	..	..	..	..	X
56.	10-4-34.	C.H. 9	..	..	+++	..	..	III
57.	12-4-34.	C.H. 60N3	..	..	+	..	..	III
58.	14-4-34.	C.H. 63N3	..	..	..	..	..	X
59.	Do.	C H. 10N7	..	..	+++	..	..	III
60.	23-4-34.	C.H. 69N	..	..	+	..	..	III
61.	Do.	C.H. 68N3	++	..	..	..	..	I
62.	7-3-34.	B. 3M	..	..	+++	..	..	III
63.	Do.	B. 1C	+++	..	..	..	..	I
64.	9-3-34.	B. 9	+++	..	..	..	..	I
65.	12-3-34.	B. 7	..	..	+++	..	..	III
66.	Do.	B. 5	..	..	+++	..	..	III
67.	13-3-34.	B. 11	+	..	..	..	..	I
68.	14-3-34.	B. 32 (O)	+++	..	..	..	..	I
69.	20-3-34.	B. 20	..	..	+++	..	..	III
70.	Do.	B. 18	..	..	+	..	..	III
71.	Do.	B. 19	..	..	++	..	..	III
72.	Do.	B. 17	..	..	+++	..	..	III
73.	22-3-34.	B. 15. T.	+	..	..	..	..	I
74.	23-3-34.	B. 21	..	..	+++	..	..	III
75.	28-3-34.	B. 16	..	..	++	..	..	III
76.	31-3-34.	B. 6	..	..	..	..	..	X
77.	Do.	B. 24	..	..	..	..	..	X
78.	3-4-34.	B. 27	..	..	+++	..	..	III
79.	5-4-34.	B. 24N	..	..	+++	..	..	III
80.	Do.	B. 28	++	..	..	..	..	I
81.	10-4-34.	B. 22	..	..	..	..	..	X
82.	Do.	B. 30	..	..	+++	..	..	III
83.	19-4-34.	B. 32	+	..	..	..	..	I
84.	Do.	B. 34	..	..	+++	..	..	III
85.	24-4-34.	B. 35	..	..	+	..	..	III

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THE VALUE OF THE "THICK FILM" METHOD IN THE DIAGNOSIS OF MALARIA*

A. C. UKIL and S. C. CHOWDHURY

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Clinical Pathologists are often handicapped in finding out malarial parasites on a blood film when they are very few, or when one or two doses of quinine had already been given before blood was collected. Physicians who have to depend again on the former are similarly handicapped in arriving at a conclusion as regards definite diagnosis.

JAMES[1] was the first to notice the enrichment of the parasitic content of malarial blood in thick films in 1920. Later KNOWLES and DAS GUPTA[2] utilised the 'thick film' method in finding out L. D. bodies in blood films (1924). In 1925, Sinton[4] began to utilise the method by taking a thick drop at one end of the slide and making a smear on the remaining portion, thus utilising the same slide for both thick and thin films. According to James, if only one thin blood film is examined, malarial parasites are detected in only 40% of cases, which are, however, rarely missed by the use of thick films. KNOWLES and SENIOR WHITE in 1927[3] used James's method in making the films and Szilard's method of dehaemoglobinising and fixing the films.

Drawn by the idea of finding malarial parasites in a greater number of cases, we began to systematically use both thick and thin films in every fever case whose blood had to be examined during 1930-31. In all, 170 samples of blood were examined and a very careful search for parasites was made in every case.

Malarial parasites were found in thin films in 17 cases (40%). In 26 more cases, where the thin film was negative, the thick film showed parasites (60%). That is to say, in 60% of cases, we could give a definite diagnosis of malaria where the thin film examination was negative. A definite opinion was given in several obscure cases of fever where only one ring parasite was detected in the thick film and the fever quickly disappeared on the exhibition of quinine.

We tried to test the degree of concentration of parasites in thick films in those cases where parasites were also present in thin films. The lowest concentration in thick films was found to be 9 times and the hightest 25 times or *an average multiplication of* 15 *times* the number found in thin films. The concentration becomes more marked in the case of *P. falciparum* than with *P. vivax*. The percentage of large mononuclear leucocytes in malaria-positive cases was found to vary from 1-32% (in half the cases it was from 7-32%, in another half 1-6%) or an average of 8 %. We found L. D. bodies in mononuclear leucocytes only in one case, in contrast to 67% found by Knowles and Das Gupta.

TECHNIQUE EMPLOYED

For every case 2 thin films and one thick film were prepared. The thick film was made by putting 4 drops (about the size of a small dried pea) at the 4 corners of an one centimeter square on the middle of a grease-free slide and drawn together by a needle to form an uniformily thick smear. It was then allowed to dry in air for 1-2 hours, according to the season (i.e. the presence of humidity in the atmosphere). The drying is accelerated by putting the slide in incubator at 37°C. When thoroughly dry, the film was first de-haemoglobinized by Szilard's[5] solution used by him for the isolation of white blood cells.

[2.5% glacial acetic acid (in aq. distil). —4 parts.

2% Acid tartaric (in aq. distil.)—1 part.]

When the film looks greyish white in colour, the fluid is drained off by tilting the slide and

* From the Pasteur Clinical Laboratory, Calcutta. Read at the Indian Science Congress, Patna, 1933.

flooded with methyl alcohol for 2-3 minutes. It is then washed thoroughly with distilled water to remove traces of the acid and allowed to dry. The film may then be stained either with Leishman's or Giemsha's stain in the usual manner.

The appearances of the parasites in adult and sexual forms are not difficult to recognize as also with young ring forms, if they are present in fair numbers. Where they are present in small numbers, it requires a little practice to identify them, as small rings with a chromatic dot or a chromatin dot with a tag of protoplasm jutting out from it may be present.

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JOURNAL
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Vol. III AUGUST No. 12

EDITORIAL COMMENTS

The Indian Medical Council

The Indian Medical Council was not ushered into the world under the happiest auspices and since its birth its actions have caused many misgivings. We are afraid the critics who objected to the constitution and powers of the Council were only too right. At the very commencement of its career irregularities have occurred, some of which though not of major importance in themselves and although of a technical nature (of which we do not wish to make capital), are all the same not entirely without significance.

Let us turn first to the holding of meetings. If reference be made to Section 8 (1) of the Indian Medical Council Act, it will be found that provision is made for the holding of a meeting upon the requisition of the Governor-General. Thereafter, however, it is provided that the "Council shall meet at such time and place as may be appointed by the Council." In contradistinction to this provision in the Act regulations framed thereunder by the Governor-General in Council gave the power to convene meetings to the President and not to the Council. It is a small point but it is, we think, necessary to draw attention to the deviation from the Act.

Of far more importance is the manner of election of the Executive Committee. It can be well imagined that such a committee wields a great deal of influence, and the successful operation of the Act depends on the Committee. Its composition, therefore, is hardly a negligible factor. In referring to the Act, we find Section 10 gives the constitution of the Committee which shall have seven members, i.e. the President and Vice-President together with five members elected by the Council from amongst its members. This section does not provide for the mode of formation of the Committee. The Act provides under Section 8, that the Council shall make regulations for the purpose. As a matter of fact, in March last, the Council, without framing any regulations formed an Executive Committee in a certain way. As to the merits of such a composition we do not propose to discuss at this stage as opinion is divided on the point, but we do not think that any action not in conformity with the Act, either in spirit or letter, can be considered valid. So far as the spirit of the Act is concerned it may be gleaned from the report of the Select Committee of the Legislative Assembly which examined the Indian Medical Council Bill, but that report is silent on the point and there is nothing in it to indicate that a composition of this description was ever contemplated by the members of the Select Committee. If their intention had been such, it would surely have been in the report and would have been given consideration in the Assembly itself. In practice the Council adopted a procedure not contemplated in the Act.

The Act provides that a regulation should first be passed and then receive the sanction of the Governor-General, but in this instance without awaiting the sanction of the Governor-General on the resolution passed at the first meeting as to the formation of the Executive Committee, the Council proceeded to select the members. It is open to any one who may be affected by the action of such an Executive Committee to challenge it.

Before we pass to the next point, it would be as well to refute a report with reference

to the appointment of inspectors which says that "a few members of the Council were against the idea of having anyone with experience outside India". No elected member ever suggested that experience of inspection outside India is to be tabooed ; what they object to is that such experience should be regarded as essential prerequisites of an Inspector.

Having cleared that point, we may now proceed to the main issue, which is whether or not the Secretary of the Council should be eligible to appointment as an Inspector. For our part, we agree with those members who considered it wrong in principle that he should. There is no precedent for it in any other country or in the British General Medical Council, which forms the model for India. Nowhere is the Secretary allowed to act as an Inspector. There are good reasons further. If the Council is to adjudicate on the report of the Inspectors, it must depend to some extent on the information and criticism from the Secretaty but if the Secretary is also an Inspector then such information from him on which the Council may rely is apt to be coloured by his inspectorial interests. Or, on the other hand his work as an Inspector is likely to be affected by his outlook as a Secretary. So important is the need to separate the two functions that, in this instance at least, principles should not be sacrificed to financial expendiency. The true welfare of Indian Medical Education demands that the functions of Inspector and Secretary should be kept apart and distinct.

It was on this faith that the majority of the Council decided at its first meeting to disallow an amalgamation of the offices,and if the opinion of the majority counted for aught the decision ought to have been allowed to stand, but at a later meeting it was rescinded. This was only possible because the Government desired it and its nominees secured it. At the first meeting the members acted as members of the Council, using their unfettered judgement, should act. But at the June meeting the very same nominees were coerced into taking a different view. This reopening of a matter which is substantially the same question as the one decided in March last, contravened the regulations which prohibit such reconsideration within a period of one year. If regulations are not to be observed they might as well not to be made, but it is worse still when a regulation is trodden under foot because the Government find that this would suit their purpose. It amounts to sheer highhandedness. But we base our case on more than the letter of the law. The Select Committee's report contains a statement to the effect that the Governor-General in Council, while having the power, would not be expected to reject the decisions of the Council. Yet on the very first important issue the Governor-General has seen fit to ask the Council to re-consider its decision. To use the phrase "Medical Swaraj" under such circumstances is blasphemy.

Now as regards the appointment of the Secretary, the Governor-General was given the power to appoint the first secretary, We should have thought the proper course would be to advertise for suitable applicants and to make the appointment on the merits of the candidates. But what are the facts ? It appears from a press report that according to Sir Fazli Hossain's own admission no advertisement was issued. It happened that in a letter to Sir Norman Walker, the President of the British General Medical Council, he mentioned that Government was on the lookout for a suitable person to fill the post of Secretary to the Indian Medical Council and Sir Norman Walker in his reply said he had just the man Dr. MacCrae. It may possible be a more concidence that Dr. MacCrae, Inspector of Medical Examinations in England on behalf of the British G. M. C. should be available at the time, and he was appointed. In view of the feeling in the profession the coincidence is rather striking. We are assured that the facts are as we have stated. It is the method of appointment of the Secretary and not the personell that we oppose.

Far be it from us to import any political considerations into the discussion, though there is a large political background against which such questions show up, but our concern is from a medical point of view to ensure the advantage of medical education in India.

As Dr. Roy in correspondence in the press has pointed out it is a question of control. The Act was promulgated with a huge purpose regarding autonomy inside the Council but in practice, the control is left in the hands of those whose interests are not one with those who pass through our medical schools or colleges. And yet those who have regard to the facts will see that far from medical Swaraj in India or "efficiency at home and honour abroad" we have been delivered into the hands of the Philistines. Apart from the official preponderance in the Council and the *veto* of the Governor-General, the Secretary may in effect be said to be the nominee of the British Medical Body. The Assembly withstood a Needham only to give us up to a MacCrae. Where is the difference in fact ? What confidence can a body, so composed, so activated, inspire among Indian medical men and the Indian public at large ?

CURRENT MEDICAL LITERATURE

MEDICINE

The Gastric Ulcer-Cancer Problem

H. SHAY AND E. M. SCHLOSS (*Ann. Int. Med.*, 7.1218, 1934.) review the literature regarding the incidence of carcinomatous change in cases of gastric ulcers and show that not more than 2-5 per cent of such ulcers develop malignancy. Regarding the clinical method of detecting the onset of malignancy in a gastric ulcer the authors point out from the statistics of various authors that usually a short history of less than one year's duration with previous prefect digestion points towards carcinoma, that of simple ulcer is comparatively long but a long history is an unjustifiable presumptive evidence of ulcer-cancer. The relief or even disappearance of symptoms under treatment is necessarily not an evidence of the benign nature of an ulcer. Marked subjective improvement on a strict ulcer regime with disappearance of symptoms, gain of weight and temporary improvement in x-ray findings is frequently seen in cases of primary gastric carcinoma, especially of the ulcerating type, due to a diminution of the associated inflammatory reaction.

As regards the value of gastric analysis in differentiating between ulcer and ulcer-cancer the authors emphasize that though absence of free hydrochloric acid is a presumptive evidence in favour of carcinoma, its presence does not exclude the possibility of malignant change in view of the fact that about 25 per cent of cases of gastric carcinoma may show a normal or high acidity. They do not believe that the occult blood reaction in stools is of much help in diagnosis of an ulcer from cancer. The occult blood reaction of gastric contents is, however, of value. In benign ulcer, even though the test is positive at the time of the first aspiration, it becomes rapidly negative under a proper medical regime. In cases of malignancy, on the other hand,the test is persistently positive inspite of subjective or objective improvement.

Regarding the value of the x-rays on the ulcer and ulcer-cancer problem the authors are of opinion that both ulcer and ulcerating carcinoma may produce identical signs. Neither is the size of the lesion a reliable criterion.

The site of the lesion as seen on the skiagram may be of considerable help because in general 60% of cancers occur at the pylorus (Cabot and Adie) and 80% of chronic gastric ulcers occur on the lesser curvature (Stewart). HURST has shown that the prepyloric region is the most frequent site of malignant diseases.

Lastly the authors summarise their mode of procedure in on ulcerating lesion of the stomach as follows :

In a case giving a short history of gastric symptoms (especially if the history is less than one year in duration and particularly if perfect digestion had previously been the rule), accompanied by anacidity and the presence of occult or gross blood throughout a fractional analysis, with a lesion close to the pylorus, *immediate surgery* is advisable, but if any of the factors mentioned are absent, a short rigid ulcer regime for not more than three weeeks may be tried.

If, on the other hand, the history is long, gastric free acidity is maintained, the occult blood reaction positive or negative, and the lesion situated higher on the lesser curvature, the patient is entitled to a *trial medical regime*, since it is known tha medical cure is effective in benign gastric ulcer.

The criteria for continuation of medical treatmant are as follows : rapid subjective relief ; continuous diminution in size of the *niche* by roentgen-ray ; no drop in gastric acidity ; and the disappearance if the occult blood reaction in the test meal.

If such changes do not occur within six weeks of treatment, roentgen-ray and gastric analysis having been repeated at three-week intervals, then surgery should be employed.

Of the criteria mentioned, the authors place the greatest stress upon the disappearance of the occult blood reaction in the gastric contents since, as they have already pointed out, the other improvements may occur with a malignant as well as with benign ulcer.

J. C. B.

Secretion of Gastric Juice and Localization of Zones of Hyperaesthesia

F. WINKLER (*Klin. Woschr* 13 : 174, 1934, *Ref. J. A. M. A. April* 7, 1934.) calls attention to the observations of Head, Mackenzie and others that visceral disorders produce hyperalgesia in the cutaneous areas that are innervated by the same segments as the diseased organ. Proges wasable to observe in subacidity and anacidity, which he ascribes to gastritis of the body of the stomach, that the zone of hyperalgesia is on the left side whereas in hyperacidity, which he ascribes to gastritis of the antrum, the sensitive points are on the right side. Since the localization of the hyperalgesic zones may have a certain diagnostic significance for the secretory action of the stomach, the author decided to compare the zones of hyperalgesia with the results of the examination of the gastric juice in large number of patients with gastritis. He was able to corroborate the observations of Proges, for he found that reduced gastric secretion is accompanied by hyperesthesia on the left side and hypersecretion by hyperalgesia on the right side, in the region of the last thoracic segments. This indicates that in hypoacidity the body of the stomach (innervation from the left side) and in hyperacidity the antrum (innervation from the right side) is diseased. He thinks that exceptions to this rule are indicative of complicating disturbances in the region of the segments adjoining the zone of hyperaesthesia.

J. C. B.

Vomicae treated Conservatively

F. BAUER (*Acta Davosiana*, April 1934, Ref. *Lancet*, April 28, 1934) has related before the Medical Society of Davoss his experience of the spontaneous disappearance of tuberculous cavities in the lung. Speaking after long residence in Alpine sanatoriums Dr. Bauer has retained his belief in the ability of the hygienic-dietetic regime to deal with the severe destructive forms of tuberculosis of the lung, and besought his colleagues not to forget the wonderful successes attained before the introduction of collapse therapy—results still within the clinician's reach. For himself he could not overlook the troublesome complications resulting from artificial pneumothorax ; patients who had recovered after collapse therapy did not, he thought, regain respiratory function as completely as those who had not undergone any surgical procedure. Dr. Bauer is a warm supporter of the standpoint of Dr. Fernand Cardis of Leysin, who demands a period of strict conservative treatment lasting for two or three months before begining pneumothorax treatment. Even with afebrile patients he thought this period was best spent in absolute rest in bed. It should be long enough to show whether there was a good tendency towards fibrosis. It any case it gives time for a diminution of toxic absorption and for improvement in the condition of the remaining foci in the same or in the other lung. He thought the danger of haemoptysis during this period had been very much exaggerated ; he had very rarely seen it occur. The likelihood of the pleura becoming prematurely adherent was very slight in patients kept strictly quiet in bed. Recently he had occasion to inquire again into the subsequent history of the 29 patients with lung cavities, treated conservatively in the Park (late Turban) Sanatorium, reported on by H. Wohlers four years ago ; 21 of these patients now, after an average period of six years, had remained well, 18 of them following their normal occupation.

J. C. B.

Cautery of Endopleural Adhesions

A. TUXEN (*Norsk Mag. Leager.*, 95:129-240 ; Feb, 1934 ; Ref. *J. A. M. A.* April 7, 1934). says that endopleural adhesions are present in three fourths of all cases of

pneumothorax. Moderately extensive adhesions or adhesions over the stronger part of the lung may offer so slight an obstacle to collapse that the pneumothorax does become effective; with extensive unfavourably situated adhesions, a partial pneumothorax results. Thoracocauterization is indicated on clinical-roentgenologic signs of ineffective pneumothorax, and even in clinically effective pneuthorax roentgenologic adhesions over the cavern or preventing selective collapse constitute a strong indication for cauterization. With intended or performed bilateral pneumothorax, cauterization of every fairly easily divisible adhesion is called for. Roentgen examination does not give exact information as to location, extent or character of the adhesions, and the feasibility of thoracocauterization must be determined by thoracoscopy. Thinner threads and strands and membranes at a good distance from the lung are easily operated on; thick pedicles, membranes, close to the lung, hour-glass adhesions and thin, finger-like pedicles with short or no fibrous transition to the chest wall are difficult to operate on. Difficult adhesions are divided only on strict clinical-roentgenologic indication. If the grave finger-like pedicles cannot be divided pneumothorax should be discontinued and thoracoplasty done instead. Flat adhesions cannot be operated on. The time of operation should not be earlier than two months after pneumothorax; with too long delay, exudation may render the procedure more difficult. Long, thin, solitary threads should be divided early. In ninety two cases of thoracoscopy in Tuxen's material, follow-up information was available In the seventy-nine cases of infective pneumothroax thoracocauterization was done, with complete success in forty-two and improvement in twelve, and in the thirteen cases of effective pneumothorax thoracocauterization was successful in twelve, with adhesion-free collapse in one and considerable loosening in nine. All types of adhesions were seen. The worst complication, spontaneous pneumothorax due to rupture of the lung, occured in five, two being fatal. These five, together with four illustrating the value and the limitation of the methods and one of unusually grave lung pedicle, are described.

J. C. B.

PHARMACOLOGY & THERAPEUTICS

The Therapeutic Action of Prostigmin

E. A. Carmichael, F. R. Fraser and their associates, (*The Lancet* vol. 1, 942, May 5, 1934) made study of the action of *prostigmin*, an analogue of physostigmine, in a series of 41 patients, 13 of which were apparently normal persons, 16 were cases with post-operative abdominal distension. The drug was administered subcutaneously or intramuscularly in doses of 1-4 c.c. (.0005—.002 g). In order to determine clearly the action of the drug on the movement of the intestines—(i) two patients with colostomy were given an injection of 2 c.c.m. (.001 g), resulting in alternate contraction and relaxation of the exposed portion of the colon with passage of small quantities of wind within 6-45 minutes of the injection; (ii). . Four patients were studied by the x-rays with barium meals for a period of one hour following the injection of prostigmin. Active movements in the transverse and descending colon were seen for 10-15 minutes at the end of there-quarters of an hour after the injection. Such movements are mot commonly seen in normal intestines.

The authors draw the following conclusions from their observations:

(1) The subcutaneous or intramuscular administration of prostigmin produces in normal persons, active colonic movements associated with sensations of rumbling or griping pain in 10-20 minutes after the injection. These movements, effect intermittent passage of flatus only but no faceal material.

(2) Even in doses double the recommended dose of 1 c.c. (.0005 g) prostigmin dose not leave any significant effect on heart rate or blood pressure.

(3) In cases of flatulent distension prostigmin followed by pituitrin and enema is helpful in effecting a satisfactory passage of flatus.

J. C. B.

NEUROLOGY & PSYCHIATRY

Treament of Neurosyphilis with Acetarsone

Leo Spiegel (*Am. J. Syph;* No. 1, 56, Jan, 1934). used acetarsone in the treatment of 25 patients with various types of neuro-

syphilis over a period of seventeen months. Injections of 1 G. were given intravenously, weekly or twice weekly according to the patient's convenience, the initial dose being in all cases from 0.25 to 0.5 G. for the first three or four doses. The injections were given continuously without any rest period. No visual disturbances, either subjective or objective, were observed. Acetarsone was well tolerated even by some of the patients who could not tolerate tryparsamide because of the complicating visual disturbances.

As a result of repeated clinical examinations correlated with frequent serological investigations of the spinal fluid the author came to the following conclusions :—

(1) Marked serological improvement both as regards spinal fluid and blood was found in most cases of various types of neurosyphilis. (2) Ther was an invariable reduction of the cell count, the protein and the globulin content of the spinal fluid in all cases after 6-10 injections of the drug. In one case the protein and globulin fraction was increased due to accidental contamination with blood.

The author advocates the use of the drug in cases which are not suitable for malarial therapy. Its use should also be extended to various other forms of neurosyphilis because of its high penetrating power, its high spirochaeticidal property, and its freedom from reaction though given over prolonged periods.

J. C. B.

Punture of the Cisterna Magna

L. H. Gilman and G. F. Mempf (*Arch. Neurol. and Psychiat.* 30 : 1282, Dec. 1933 *Ref. Med. Times ;* March, 1934) report the use of cisternal puncture more than 5,000 times at the Indianapolis City Hospital. The procedure was first used in the treatment of basilar meningitis ; later it was used in cases in which many cerebrospinal punctures were necessary : several patients had more than thirty cisternal punctures. A modification of Ayer's method has been used. A needle with a large gauge (16) and not very flexible, with a small hilt, is preferred. Care is taken to insert the needle in the exact midline just at the upper border of the first spinous process ; the bevel is directed caudally ; the needle is kept carefully in the exact midline and pointed as early as possible to ward the hair line, never below the eyebrows ; the stylet is removed as soon as the needle passes through the skin and outer ligaments. The needle is then held with both thumbs and forefingers and inserted steadily and slowly, with both hands steadied against the neck and head of the patient. As soon as the needle passes through the dura, even though this may not be felt, spinal fluid appears as a rule ; there were only 6 instances in the author's series in which it did not appear at once ; and only 2 in which there was no cerebrospinal fluid obtained. In one case in the series autopsy showed hemorrhage from the dura about the base of the brain that may have been the result of cisternal puncture ; death in this case was due to purulent meningitis with multiple abscesses of the brain. Cisternal puncture is less painful than other procedures and causes less discomfort after drainage than lumbar puncture ; it is more feasible in cases with opisthotonus. As noted by others, the authors have found it of definite value in treatment in spinal block and in basilar meningitis ; they have also found its use desirable in cases where frequent drainage is necessary, alternating with lumbar puncture.

J. C. B.

SURGERY

The Trendelenburg Operation in the Treatment of Varicose Veins

Cooper writes (*Am. J. Surg.* Vol. XXIV, No. 1 April, 1934,) that he has given in his private practice 30,000 injections of various solutions in the obliterative treatment of varicose veins. Of the cases in which he used the injection alone there was a recurrence of 15 per cent. On a careful search into the cases he found that sources or points of back-flow or reverse flow, from the deep venous system into the superficial venous system, constituted the greatest single cause of this recurrence. He is of opinion that thorough obliteration of varicose veins is frequently followed by recurrence

unless high ligation of the internal saphenous vein is practised. Furthermore, where the large communicating veins in the legs are responsible for the back flow from the deep veins, the communicating veins must also be ligated to reduce the percentage of recurrence to a negligible quantity.

Now to determine the state of the patient Trendelenburg phenomenon is carefully followed which is classified into four groups.

(1) Trendelenburg phenomenon positive —when a reverse flow from the deep vein into the internal saphenous takes place at the sapheno-femoral junction or through one of the larger communicating veins in the lower part of the thigh.

(2) Trendelenburg phenomenon negative —when the back flow takes place through the incompetent communicating veins into the leg while the valves in the internal saphenous in the thigh are competent.

(3) Trendelenburg phenomena double— when both the aforementioned phenomena occur in the same case.

(4) Trendelenburg phenomena nil—when both (1) and (2) are absent. The varicosity is explained by the fact that the veins have dilated walls but the valves are competent and coapt to prevent the back flow.

To demonstrate the Trendelenburg phenomena Mc Pheeter's advice is to have the patient lie prone on the examining table and elevate the foot and leg as high as possible so as to drain the blood from (the varices and to cause the veins to collapse. With firm pressure on a pad of gauge over the sapheno-femoral opening, have the patient stand quickly and notice how rapidly the varices will fill below the point of pressure. If the varices are large and yet fill slowly from twenty to thirty seconds, and then only under moderate tension, one may be sure that there is no marked "blow out" from the deep system and there is only the normal return of blood from the foot and so on. Now, if the varices are found more tensly distended, when the blocking pressure is released over the internal saphenous in the thigh, there is a reverse downward flow from above.

After thus determining the Tendelenburg status of the patient the point or points at which the ligation should be performed are to be found out. The writer usually combines two methods for this purpose. In the first, the blood in the vein is presed upwards and each segment of vein immediately below the finger pressure remains collapsed, the pressure is continued upward to the groin' If at any point below the groin the segment of vein below the point of pressure suddenly fills the point is selected as the site for ligation. The second method for locating the internal saphenous vein in the thigh is to gently tap the prominent veins in the legs with the fingers of one hand, the patient standing. The pulse or pulse wave then produced is transmitted to the internal saphenous vein in the thigh which is carefully mapped out by gentle palpation. The higher point at which the pulse wave is palpated is the site usually selected for operation.

Technique of operation.

The thigh or leg is shaved with the patient in the recumbent position. The skin is prepared with tinc. of iodine followed by alcohol. A ½ per cent solution of novocain is then injected into the skin in a line which crosses the marked vein at right angle. The skin and subcutaneous tissues are then incised along the line of novocain infiltration and the vein is quickly seen in the deeper layer of the superficial fascia. It is then freed from its sheath (and ligated at two points about one inch apart and the intervening segment of vein is excised. The vein stumps are dropped into the wound. The fascia is apposed with one or two fine cat-gut sutures. The skin is next closed with one or two silk sutures. The suture is usually removed on the 5th day when the injection of sclerosing solution is begun. After ligation the veins are partially collapsed so that smaller quantities of the sclerosing solution can be used with as great or with greater effect than when the vein is distended with blood. COOPER says that Trendelenburg operation was performed in 261 cases of extensive varicose veins as a preliminary measure to injection treatment where not a single instance of recurrence was noted. The sclerosed vein after ligation and injection disappeared more quickly and completely than when treated by injection alone.

(The solutions used are quinine hydrochloride 4 G. and urethane 2 G., sodium salicylate 20-40%, sodium chloride 15-20% and glucose 66%. The usual dose of salicylate 6 c.c. of 20% or 4 c.c. of 40%, the chloride 20 c.c. of 20% and glucose 5 c.c. of 66%.

Contraindications—Pelvic tumours, including pregnancy: cirrhosis of the liver; acute or subacute phlebitis; and cases following phlegmasia alba doblen.

A. N. R.

Early Diagnosis of Carcinoma of the Oesophagus

J. GUISEZ. (*Jour. d Proc.* No. 37, 33 Ref. *Ars. Med* No. 1, 1934) wiite thats spasms, inflammatory stenosis, syphilitic gummas and submucous tumours often make an early diagnosis of cancer of the oesophagus very difficult. As an aid to this end the following are of considerable value.

Any patient over 50 who complains of difficulty in swallowing, specially of solid food getting stuck, is suspected of carcinoma, however healthy he may appear. Gradually, there is usually a feeling of anxiety and oppression; the patient thinks he has sawllowed a bone. Oesophagoscopy reveals small,unshifting ulcers or proliferations on an induarted base which easily bleed when touched with cotton-wool. Freedom from pain in the early stage is characteristic till it spreads to the surrounding tissues. Stenosis is a sign of carcinoma developing inwards. In elderly persons the tumour often grows slowly; their appetite remains unimpaired, emaciation or cachexia does not develop until a late stage. Other aids to diagnosis are a greyish-white or dark coating on either sides of the middle line of the base of the tongue, especially with carcinoma of the upper part of the oesophagus and sputum slightly streaked with blood. Hoarseness in elderly persons for which there is no other explanation, especially if there is at the same time difficulty in swallowing is absolutely indicative of carcinoma of the oesophagus.

Syphilitic gummas or scars in the oesophagus are extremely rare. For the diagnosis not only positive sero-reactions but if possible, other signs of syphilis are necessary.

Submucous tumours present great diagnostic difficulties. The important point of difference is that these tumours grow outwards whereas carcinoma develops inwards.

As a differentiation between carcinoma and spasm it should be remembered that with the latter dysphagia concerns fluids also whereas with carcinoma it is chiefly solid food that causes difficulty.

Hypertrophic or proliferating regions which are present with inflammatory stenosis do not bleed like cancer when touched with cotton-wool.

A. N. R.

Foriegn Bodies in the Bronchi and Lungs

F. HASLINGER (*Wien. klin. Woschr., No.* 31, 1933, Ref. *Ars. Med.* Vol. XII, No. 3) remarks that patients suffering from ailments with signs of bronchitis, pneumonia, bronchiectasis, pulmonary abscess or pulmonary gangrene often consult a physician, primarily, for treatment and continues the same even for long though in certain cases, there is no appreciable good result. In such cases a search should be always made for a foreign body in the bronchi and lungs. The importance of such an attempt is apparent from the report of a case given below.

A middle aged woman had suffered for seven years from a bad cough with the expectoration of about 200 c.c. purulent sputum daily. Internal and x-ray examinations spoke for bronchiectatic dilatation in the right lung. Internal treatment continued for years produced no improvement and the patient was sent to the surgical department. A bronchoscopic examination was then made and showed large quantities of thick fluid pus in the right bronchus. After it had been withdrawn granulation tissue became visible. On minute inspection, a small piece of chicken bone was found in the granulation tissue and was extracted. In a short time the secretion from the bronchi decreased and, in a few months ceased entirely; the woman is quite free from complaints. The writer, tells us here that this is only one example from among the large number of cases with a similar course observed by him.

For the diagnostic purpose information should be obtained from the patient or others

regarding the past history of the case. It is specially essential to ascertain whether the patient remembers having had an attack of coughing when the foreign body entered his throat. If one of the bronchi is completely obstructed, percussion and auscultation reveal entire absence of respiratory sound over one lung or one lobe or if it is partly obstructed, there is a rough or hissing sound of friction. X-ray examination is of great help in cases of obstruction (with metallic objects but a negative result does not exclude the presence of a body such as beans, peas, nuts, small pieces of woods and so on. As time passes on with the affection there is a complete bronchial obstruction and atelectasis of the section of the lung concerned owing to the swelling of the foreign body or to the reactive swelling of the bronchial mucous membrane. Where the foreign body partly obstructs the bronchial lumen it acts as a valve allowing entrance to the air inspired but no outlet for the expiration to take place due to the narrowing of the lumen in the latter process. The consequence is that emphysema develops on the affected side. Whenever there is any unilateral pulmonary affection which can not be satisfactorily explained by other clinical examination a foreign body in the bronchus should be thought of. And as far as the diagnosis of a foreign body is concerned, bronchoscopy is superior to any other method of examination and should always be resorted to whenever suspicion arises.

A. N. R.

OPHTHALMOLOGY & OTO-RHINOH LARYNGOLOGY

Penetrating wounds of the Orbit

COLLY remarks (*Br. J. Ophthal.*, Vol. XVIII —No. 5, May 1934) that many of the accidents which cause penetration of the orbit are of a simple nature. And owing to this simplicity patients often fail to recognise the severity of the condition. External bleeding in penetrations is usually slight and little heed is taken of the occurrence until suppuration or other complications appear. Even the presence of the foreign body in the orbit is often unrecognized, not only by the patient but even by the doctor and cases are seen where the wound has been stitched over a buried body.

The globe being relatively free is pushed aside and often surprisingly escapes injury. The wound generally lies between the globe and the orbital walls. The direction of the wound is usually from below upwards, probably owing to fact that at the time of injury the head is unconsciously thrown back.

Simple and clean wounds heal up by first intention but complications especially in cases where foreign bodies are retained, are many and can be most severe. Orbital cellulitis sinus thrombosis, meningitis and tetanus may follow an infection of the wound, while the contents of the orbit may be affected by direct injury, infection or repair. Fracture of the roof of the orbit is a serious injury often resulting in a fatal issue. Haemorrhage into the orbit is one of the commonest complications causing proptosis to a more or less marked degree. It is reasonably safe to suspect a fracture whenever the exophthalmos is very severe. Complete loss of sight which sometimes follows such an accident is most probably due to pressure on the nerve, bleeding into the nerve sheath and interruption of its blood supply. Delay in absorption of blood in the orbit favours the production of blood cysts, while if infection takes place either from a foreign body or from near-by sinuses, an orbital abscess may develop readily.

Injuries of the sensory and motor nerves in the orbit may occur in penetrating wounds, either by direct damage or secondarily from haemorrhage, inflammation or degenerative changes. Among sensory lesions neuroparalytic keratitis is occasionally found, but in many cases this condition is a complication of extreme proptosis.

Lesions of the motor nerve produce disturbance in the motility of the eye and upper lid. Injury affecting the apex of the orbit frequently affects all the nerves as they enter the cavity. It also often damages the cavernous sinus and the carotid, resulting in a communication between them and leading to the production of arterio-venous aneurism.

In mentioning injuries involving the globe as a whole the following draw our attention, viz., luxation (displacement of the globe outside the lids), avulsion (separation of the eye-

ball from the body) and displacement of the eye into a cavity bounding the orbit (antrum). These are always due to some severe accident. Luxation and avulsion usually result from accidents due to large blunt objects as cows' horn etc.

For the treatment of the various cases of injury, carefully taken history, verification of the statements and even leading questions are to be begun with. Careful search should be made for the presence of any foreign body as in a recent case it may be either seen or felt with a probe. But sch an attempt is often unfruitful when the accident is not recent.

The amount of proptosis is no indication for the presence of a foreign body as the same may be caused by haemorrhage. It is much wiser to explore all doubtful cases, especially where the wound does not heal by first intention. A granulating sinus often leads to the recognition of the presence of a foreign body.

Clean wounds require only general surgical treatment. If large, a drain for 24 hours is of advantage while repair of deeper structures with catgut sutures helps to prevent the collection of blood serum. Dirty wounds require to be carefully cleansed and dressed. Pieces of badly injured tissue are better excised, while all sinuses should be freely opened. Sometimes extreme degrees of orbital haemorrhage causing considerable proptosis requires aspiration of the fluid for the relief of pressure. For the exploration of large foreign bodies deeply embedded, x-ray should be made and then the wound enlarged. A generous incision is often of advantage as it is less likely to do damage than the traction necessary to pull an irregularly shaped body through a small wound. Whenever possible, divided parts should be carefully sutured.

A. N. R.

A Case of Cerebro-spinal Rhinorhoea following Fracture

A. Lawson (*Br. J. Ophthal.*, Vol. XVIII—No. 5, May, 1934 reports the case of a young man of 21 years who while bicycling in a dark night, had a head-on collision with another bicyclist, with the result that both fractured their skulls and were found unconscious at the side of the road sometime later.

The patient who is the subject of this report was seen very shortly afterwards lying unconscious and still bleeding violently from the nose with symptoms of severe haemorrhage into both orbits which caused considerable proptosis of both the globes particularly the left. There was also chemosis of the conjunctiva. The progress of the patient was good and rapid, but after about three weeks there was marked recession of the left globe and the patient complained of diplopia on extreme lateral movements of the eyes.

About eight weeks after the accident the patient appeared before Lawson and complained of almost continual dropping of clear fluid from the left nostril. On analysis the fluid appeared to be cerebrospinal. Further x-ray examination showed that one limb of the fracture involved the left frontal sinus, and another limb the left orbit. The operation was undertaken in the University College Hospital where the frontal sinus opening was closed with a connective tissue graft but an attempt to close the opening was a failure. The patient, however, succumbed from meningitis.

A. N. R.

The middle Ear

Cohen (*The Eye, Ear, Nose and Throat Monthly ;* Vol.XVII, No. 4, May, 34.) remarks that there is a sharp difference of opinion among the most eminent otologists with regard to the early adoption of surgical measures in the management of cases of otitis media. Dr. Guthrie, Ridont and others are advocates of early operation while S. Cohen is a votary of the time-worn saying, 'watch, wait until you believe the time for interference propitious.' The latter believes that in order to obtain good end-result, that is a live patient, good hearing, and a dry ear, it is necessary to visualize at what stage the bone necrosis has become walled off by a leucocyte barrier, where most of the necrosed cells have coalesced into one or a few cavities. Experience has shown that when minute pus cavities must be haunted for

in various parts of the mastoid process, healing does not occur as nicely as when one or a few large cavities are evacuated, necessitating less bone chiseling and scraping.

The middle ear is a six walled irregular cavity or box and is lined by mucous membrane. There is a communication with the outside world, via the Eustachian tube, and with the mastoid antrum or cells via a small opening called the additus. The rest of the box is rigid, bony, except for its outer wall, which in the main is made up of a thin membrane, erroneously called the drum. The drum is the entire box.

During an attack of otitis media the lining mucosa of the box undergoes first inflammatory, and then if the disease progresses suppurative changes ; pus gathers and collects in this box. Now, mucous lining of the Eustachian tube being generally swollen, pus finds no outlet and consequently the drum membrane is pushed out into the external canal. The usual measures adopted at this stage are, irrigation, incision, rupture of the membrane or only the so-called dry treatment.

Syringing does two things : it cleanses the canal and brings heat to the drum membrane. To wipe out the secretion and fluid near the membrane cotton applicators should be used, otherwise the warm watery solution remains in the canal and forms a fair culture medium. Experiments onthe cadaver, however, has shown that none of the fluid thus syringed in, passes into the middle ear and serves the purpose of diluting the pus and washing it out. So, it appears that cleansing by irrigation is imperfect specially as it causes excessive pain after it is done. When pus is present in the canal COHEN advises to wipe the canal frequently and insert some drops. If the pus becomes profuse this dry cleansing treatment is continued first but if the patient does not improve and the pus gets thicker, irrigation is then advised to be followed by a return to dry treatment as soon as possible.

In cases where no pus is found after incission, occasional changing of wicks dipped in some antiseptic solution is advised. In all cases caution should be taken against nose blowing.

In opening the drum membrane COHEN prefers to incise anteriorly instead of making an incision in the lower posterior quadrant, which is usually selected to be the safest site. He contends that the opening in the posterior part soon closes whereas that in the anterior part remains long open and thus provides better drainage and possibly less mastoid complications. This new procedure is, however, supposed to be dangerous because of the possible injury to the internal carotid artery which the writer doubts very much, if the incision is made under anaesthesia and with his paracentesis knife.

Next, we are given by the writer some more possibilities to face. There is a normal case of acute otitis media after the ear discharge has been established, with a fall in the temperature and pulse rate the patient feels better, the discharge gradually changes from purulent to mucopurulent, then mucoid and gradually ceases and recovery takes place. But instead of this we may get a different picture as this, the temperature fluctuates for a week or more following the onset with pain in the ear, tenderness over the mastoid and restlessness. Most likely sufficient and easy pus evacuation is not occurring. Pressure and toxic absorption are present. The writer warns that in these cases hasty operation means hasty exit for the patient. In the vast majority of cases the body resistance will assert itself. If in addition to symptoms mentioned, those suggesting meningeal irritation and septicaemia are obtained post-auricular drainage may be called for. Little should be done to disturb the field of battle. Attempts to remove all the diseased cells should be given up. In such cases it is better to tell the family that a secondary operation later on may be necessary for the removal of the diseased tissue. This, however, may not be necessary, as when recovery takes place the diseased bone left behind will come out in the discharge.

Records go to show that it is in these cases which for some reason necessitated early operative intervention, most complications occurred. Dr. Randall often used to say that he knew only one positive indication for incising into a mastoid antrum and that as the presence of periauricular fluctuation accompanying middle ear infection. A. N. R.

PATHOLOGY & BACTERIOLOGY

A study of "Smooth" and "Rough" forms of the typhoid bacillus in relation to prophylactic vaccination and immunity in typhoid fever

FRANK MALTANER (*Jour. of Immun.* Vol. XXVI, 161.) 1934, applied methods of dissociation to a group of strains of the *typhoid bacillus* including recently isolated cultures from "carriers" and several well known laboratory strains.

Typical smooth and rough variants were obtained from both flaggellated and non-flagellated form —rough, smooth, flagellated, and non-flagellated.

No serological relationship was observed in agglutination and agglutinin-absorption experiments between the somatic antigens of smooth and rough races of B. typhosus although the existence of a common flagellar antigen was confirmed.

Living suspensions of all flagellated and of some non-flagellated rough forms failed to be agglutinated by pure rough somatic antiserum. They did agglutinate, however, when the suspensions were heated to a temperature which destroys flagella and probably also capsules.

By intravenous inoulation of rabbits with suspensions of living rough and smooth variants, the relative invasive and toxic character of these forms was determined. No differences in toxicity were observed by this method. Only the smooth variants, however, were found to possess invasive properties as determined by development of the carrier state.

Vaccination of rabbits by the intravenous method with adequate dosage of either rough or smooth variants gave protection against approximately fourteen times the minimum invasive dose of smooth living bacilli. The rough vaccines protected distinctly better than the smooth. The sera of rabbits vaccinated with non-flagellated rough vaccines did not possess specific agglutinins for the smooth infecting strain. Those vaccinated with rough flagellated forms possessed only flagellar agglutinins.

The inoculation of normal rabbits intravenously with rough variants of the typhoid bacillus resulted in a more marked and persistent leucocytosis than when smooth bacilli were used. Immunized rabbits regardless of whether rough or smooth vaccines had been used, responded after the usual primary leucopenia with a hyperleucocytosis upon intravenous injection of smooth living cultures, whereas the response of unvaccinated rabbits to the injection of virulent smooth bacilli was relatively slight.

The intraperitoneal inoculation of living rough and smooth typhoid bacilli into guinea pigs indicated that the smooth variant was more toxic than the rough. However, the inoculated smooth bacilli multiplied very rapidly in the peritoneum whereas similar doses of the rough variant were disposed of by prompt phagocytosis.

The rough variant, as indicated, is phagocyted more vigorously than the smooth in the peritoneal cavity of the guinea pig-both within the peritoneal exudate and on and within the omentum and liver. This phagocytic response to rough organisms in normal guinea-pigs parallels the reaction obtained when smooth bacilli are inoculated into the peritoneal cavity of guinea-pigs immunized with either smooth or rough vaccines.

The results of this experimental investigation are, in every particular,in conformity with the practical experience of the past thirty years in preventive inoculation of human subjects against tyhpoid fever.

D. N. C.

The differentiation of living from dead bacteria by staining reaetions

FREDERICK P. GAY and ADA R. CLARK (*Jour. Bact.* Vol. XXVII, Number 2, 1934.) have made a study of the PROCA KAYSER differential stain applied to living as contrasted with dead bacteria, and confirms the accuracy of the method. Provided certain specified conditions as to order and duration of application of each of the stains involved (methylene blue then carbol fuchsin) are observed, the stain clearly indicates whether the bacteria were alive (blue stained) or dead (purple to red) when placed on the slide on which they are subsequently dried and fixed by heat, in the usual fashion, The apparent exceptions in failure of a shift in staining on the part of individual organisms, are found to be simply confirmatory of the accuracy of the method.

Death as produced by physical or chemical agents, bacteriophage or by serum results in each instance in a similar shift in staining.

Gram positive and gram negative bacteria, acid fast bacteria and yeast all show a similar shift in staining reaction. The distorted but relatively resistant nucleus of nucleated red blood cells haemolysed in different ways shows a corresponding shift from blue to red when stained by the Proca method.

Living bacterial spores, whether intracellular or extracellular take the faintest if any stain by the Proca method ; when dead they stain blue.

Certain substitutions in either the primary or the secondary dye stuff employed in the Proca-Kayser method are possible.

They met with little success with the methylene blue-eosin contrast stain employed by Mesnil and by Bordet to show similar changes in bacteria within phagocytes. The Proca stain although better fails to show convincingly that phagocytes actually change live to dead bacterial protoplasm.

The precise nature of the change that bacterial protoplasm undergoes is still unknown. It is not simply a crude change in reaction of the bacterial protoplasm and in or reversal of electric change in the staining substrate. Apparently the changes in the permeability of the protoplasm and in the reactive groupings of the protein are involved.

Neutral red fails for the most part to stain bacteria until they become ingested by phagocytes. The intracellular stain however is not indicative of bacterial death but rather of the acidity of the digestive vacuoles. The nucleii of chicken or pigeon red cells also take neutral red in great dilutions.

D. N. C.

Pneumococcus Leucocidin

Florence Oram (*Jour. of Immun.* Vol. XXVI, 233 ; 1934,) has produced a toxin from active growing cultures of pneumococcus which destroys leucocytes as demonstrated by the Neisser and *Wechsberg* method. This leucocidin has been demonstrated in aerobic and anaerobic cultures, from growths of both virulent and avirulent strains and from types I, II, and II.

It is believed that a peroxide which is formed in the aerobic cultures modifies the potency of the toxins through oxidation. The peroxide appears earlier and is of greater concentration in cultures of the virulent strains ; this may account for the avirulent cultures apparently containing toxins of as great a potency as the virulent strains, although they may actually be weaker.

The leucocidin is readily oxidised ; it loses strength in a few days under vaseline seal at 5°C ; it is not injured at 70°C. for one hour. Evaporation in vacuum at 5°C. does not deteriorate it ; and the toxicity may be enhanced three to four times by the addition of laked red blood cells.

The soluble specific substance of pneumococcus type I was found to be destructive for leucocytes : 0.5 mgm. to 15,000,000 leucocytes, but this polysaccharide is not identical with the leucocidin.

Rabbit clasmatocytes are more resistant to the pneumococcus leucocidin than are rabbit polymorphonuclears, and leucocytes of the naturally resistant dog are less affected than the leucocytes of the rabbit. Organ tissues, as exemplified by liver and adrenal, are destroyed by this pneumococcus toxin, the adrenal being less resistant than the liver.

Hemotoxin was produced from an avirulent strain of pneumococcus type III in cultures from four hours to three weeks old. As it was present only in cultures of twenty two hours and older when virulent strains were employed, it would seem that the peroxide hindered its production in young growths. Apparently the same conditions in the cultures govern the production and preservation of the hemotoxin and leucocidin, for where the most potent leucocidin was produced the best hemotoxin was found. But the leucocidin is separable from hemotoxin by its greater thermostability and its appearance in cultures where no hemotoxin can be demonstrated.

The leucocidin filtrates are not toxic for mice in 2 c.c. amounts injected intraperitoneally,

and repeated doses give very slight protection. Ten cubic centimeters of the filtrates injected intrapleurally to rabbits do not produce any toxic symptoms and an avirulent strain of pneumococcus injected simultaneously does not become virulent. Sterile supernatant fluids of pleural exudates of rabbits with empyema while in themselves not toxic, upon repeated doses intravenously, produce an antileucocidin.

Normal rabbit serum does not neutralize the pneumococcus leucocidin but the majority of human sera tested possessed a neutralizing property.

D. N. C.

OBSTETRICS & GYNAECOLOGY

Early Diagnosis of Carcinoma of The Cervix

WALTER SCHILLER. (*Surg. Gynec. & Obst.*, 56 : 210-222, 1933), writes that surgery and present radiation methods have apparently almost reached a stage where no further improvement can be expected from them in the treatment of cervical cancer, and future progress depends upon earlier diagnosis. The earliest cancers of the cervix cannot be expected to have all the characteristics of the advanced ones, and it is only by the examination of a series of cases that the relationship can be established and the earliest stages recognized.

In an obvious case of cervical cancer in an advanced stage, the growth may be separated from the normal epithelium by a small inflammatory zone free of epithelium. In a small percentage of cases, however, the carcinoma is in direct contact with this normal epithelium, and here the region of invading growth is surrounded by a zone in which the carcinoma forms only a superficial layer of the same thickness as the normal epithelium. This superficial layer shows no tendency to invasion or infiltration but has the cellular characteristics of cancer. In advanced cases the relative size of the superficial layer to the invading cancer is very small, but in the earlier cancers it becomes relatively more important. Finally in the youngest types there is only this superficial carcinomatous layer with no ulceration and no penetration.

The histological characteristics of this superficial carcinomatous layer consist essentially in the presence of atypical and polymorphic cells nucleli. The division into basal layer, prickle-cell layer, superficial vesicular and parakeratotic layers is abolished, and a great number of deeply staining nuclei lying close together are found near the surface. The demarcation between the carcinomatous layer and the normal layer is always sharp but oblique, for the carcinomatous tissue extends further at the base than at the surface. A special characteristic of the carcinomatous superficial layer is the disappearance of glycogen from the cells of the upper layer.

To the naked eye these minute carcinomta appear as small, white, opaque, dull, sometimes slightly wrinkled spots in the smooth, white transparent epithelium of the cervix. The description can also be applied to the "leukoplakia" of several of the older French and English authors, recently emphasized by Hinselmann (in Veit's Handbuch der Gynäkologie, 1930). With the naked eye it is not possible to differentiate between carcinomatous and hyperkeratotic leukoplakia, nor can this be done with a colposcope. The differentiation can be made only by microscopic examination.

When the normal cervix is painted with Lugol's solution, the glycogen-containing epithelium acquires in about one half to one minute a mahogany brown color, while areas in which a pathologic process is present remain unstained. Such unstained epithelial spots possess the following possibilities.

1. The presence of carcinomatous layers or incipient carcinomata.
2. The presence of hyperkeratosis, a result of prolapse or descensus vaginae.
3. The presence of hyperkeratosis, a consequence of luetic infection.
4. Traumatic desquamation from an instrument used in examination.

The single erosion should be readily recognizable from its untreated appearance although it takes the stain lightly. More advanced ulcerated carcinoma stains brown, due to the surface necrosis, but the superficial carcinomatous layer at its periphery may appear as a

white stripe. This may be of use in determining the necessary extent of the incision to remove all of the growth at the time of operation.

When a suspicious area is located, the accepted V-shaped excision is not made to obtain a biopsy, because the growth is entirely superficial. Instead, a small piece of superficial epithelium is scraped or peeled off with a small curette and fixed in strong alcohol. Such scraped-off tissue is stained for glycogen according to the Best method and the presence of large, typical vesicular, superficial layers of cells with an abundance of glycogen is evidence against carcinoma.

When an incipient carcinoma is diagnosed by the iodine method it is the custom of the II Vienna, Clinic, of which Schiller is a member, to operate. In women near the menopause a hysterectomy is performed at once. In younger women the cervix is first amputated and serial section made to determine if all the growth has been removed.

In the last two and a half years since the method has been used 535 scrapings have been made, of which 140 were positive, many being obvious cancer cases. The total number of operations for cervical cancer in this time was 90 ; 19 of these were for early carcinoma diagnosed as a result of scrapings, without previous clinical evidence of malignancy. Of these 19 women, 8 were under forty years of age. During the same period 6 cases of early cancer were discovered on routine examination of uteri removed at operation for other conditions, but none of these had been examined by the iodine painting method.

Schiller believes that the iodine test should be a routine in all cases coming to the clinic for treatment of any gynecologic condition. The percentage of cure in cervical carcinoma would be raised to 95 or 100 per cent. if every woman would submit herself two or three times yearly for this test.

G. M.

PEDIATRICS

Tuberculin Ointment Patch Test

E. Wolff (*Am. J. Dis. Child.*, Vol. 47, 764, April, 1934) studied the sensitivity of the tuberculin ointment patch test as compared with the intracutaneous method of testing. He chose the medial brachial surface or the paravartebral region as suitable sites for the application of the ointment. Details of the technique are given which should be read in original. Readings were taken at the end of 48 hours.

His conclusions are as follows :

The ointment is stable and easier to apply, and it causes less psychic disturbance and less untoward general and local reactions in the patient than does the old tuberculin used in the intracutaneous test.

The agreement between the ointment patch test and the intracutaneous test with tuberculin in all dilutions as performed on 190 children was 95.8 per cent.

The ointment patch test is generally comparable in results with an intracutaneous injection of 0.1 c.c. of old tuberculin, 1 : 100.

The ointment patch test produced markedly less nonspecific cutaneous irritation that the intracutaneous test.

The author points out in a note that the Los Angeles Board of Health recently tested 685 school children with tuberculin ointment patch test in conjunction with the Mantoux test (tuberculin dilution, 1 : 1000). The agreement between the tests was 93.5 per cent. (641 cases).

J. C. B.

Electrocardiographic Studies during Pneumonia in Infants and in Children

A. F. Abt and M. I. Vinnecour (*Am. J. Dis . Child.*, Vol. 47, 747, April, 1934) made serial electrocardiographic studies during broncho-pneumonia in infants and children from 4 months to 7 years of age none of whom had received any digitalis, atropine or any other drug that might act on cardiac muscle or affect its conductivity and compared with control records taken after complete recovery. Case reports of eight patients on whom 38 electro-cardiograms were taken are appended to this original article.

The electrocardiographic findings showed most marked changes in the P R interval and T_1 and T_2. Prolongation of PR interval to as much as 0.24 sec. or definite A-V block was present in 2 out of 8 cases. T_1 and T_2 showed a progressive flattening during the acute illness in every case. T_1 and T_2 were inverted and cove-shaped in one case.

Changes in T_3 was less constant and of no significance. No premature beats or fibrillation occurred in the series. It should be noted that these electrocardiographic abnormalities which were present in acute pneumonic process disappeared during convalesence. The authors suggest the electrocardiographic changes to be due to an actual toxic myocarditis in acute bronchopneumonia in infants and children and point out that such changes were more delicate an index of cardiac involvement than clinical symptoms or signs present in the majority of their cases.

J. C. B.

ASSOCIATION NOTES

INDIAN MEDICAL ASSOCIATION
(Delhi Branch)
An Appeal

Dear Sir/Madam,

Perhaps you are aware that the XIth All-India Medical Conference will be held in Delhi during the X'Mas week. As this conference is held under the auspices of the Indian Medical Association, the Delhi branch of the I. M. A. has to organise the conference.

As prominent medical men and women from all over the country are expected to attend this Conference, either as delegates or visitors, it has been decided to form a reception committee which will include not only members of the I. M. A. but all medical men and women of Delhi who would like to join the same.

The Reception Committee will be an autonomous body, subject to the following reservations :—

1. The Delegates fee is fixed at Rs. 5/- ; 50% of this, has to be remitted to the Central Council of the I. M. A.
2. The reception committee to be responsible for all expenses, balance, if any, going to the funds of the Delhi branch of the I. M. A.
3. All scientific papers accepted, will be for publication in the Journal of the I. M. A. only.
4. The Reception Committee will elect its own chairman and other office bearers, but as the Delhi branch of the I. M. A. is responsible for this Conference, the Hony. Secretary of the Delhi branch of the I. M. A. will be the organising secretary.
5. As the annual conference of the All-India Medical Licentiates Association, will also be held in Delhi about the same time, as far as possible, the two conferences should co-operate, with regard to the exhibition and the place of conference, etc.

I hope, the medical profession of Delhi will rise to the occasion in making this conference, the success it deserves befitting the occasion and the Imperial City. It has been usual, in past conferences, to fix a minimum subscription of Rs. 10/- for membership of the Reception Committee ; but as a conference of this nature approximately costs Rs. 2,000/-, I hope members, will contribute more than the minimum subscription, and that the profession at a whole will join the Reception Committee and make it truly representative.

As soon as a sufficient number of members have been enrolled the first meeting of the Reception Committee will be called to elect the office bearers and to form the various sub-committees. A sub-committee consisting of the following gentlemen has been formed to enrol members of the Reception Committee :—

1. Dr. J. P. Ganguli.
2. Dr. K. N. Bose.
3. Dr. C. P. Chaube.
4. Dr. G. N. Khanna.
5. Dr. S. C. Sen.

I request that all medical men and women of Delhi, whether they be officials or non-officials, members or non-members of the I. M. A., will respond to this appeal, as this All-India Medical Conference is intended to foster social and professional harmony, advancement of the medical science, and to consider and solve problems affecting the profession and the public.

Yours sincerely,
I. T. MITTRA,
President.
I. M. A. DELHI BRANCH.

INDIAN MEDICAL ASSOCIATION
(Amritsar Branch)
Report for 1934

The year under report has been one of great trial for the Association and the fact that we see it to-day alive and active is a strong proof of the fact, if one were needed at all, that there is a real need for the Association and we are all begining to realise that we have severally and collectively to do our bit each one of us to keep it alive and going.

During the year Major Amir Chand, who took such a keen interest in the work of the Association, had to resign the Presidentship due to Government restriction placed on Government servants joining the Association. Dr. Maneckshaw was elected to carry on the duties of the President. Dr. Karam Chand Passi, one of the Vice-Presidents, resigned for reasons of health and due to depleted membership it was considered unnecessary to elect another Vice-President in his place. The unfortunate illness from tuberculosis of Dr. K. M. Munir, our energetic Treasurer and his subsequent shifting to a sanatorium necessitated his resignation and his place was filled up by Dr. C. L. Chatrath. Thus no less than three of the six office-bearers were prevented from taking interest and if inspite of all this the Association has been able to achieve some measure of success it is due to the fact that the need for its continued existence has been realised.

Altogether fifteen general meetings and four executive meetings were held during the year when the following subjects were treated by the respective members :—

7-1-1933. Elections.

21-1-1933. Functions and diseases of the Kidney, by Major Amir Chand, I.M.S.

5-2-1933. Effects of thought on our Physical bodies, by Dr. H. F. Maneckshaw.

10-2-1933. Street accidents and the general practitioner, by Khan Bahadur Dr. Mir Hidayatullah.

4-3-1933. Fever, by Dr. Karam Chand Passi.

10-3-1933. Some experiments of the recent small-pox epidemic, by Dr. N. S. Sathi.

1-4-1933. The Peptic Ulcer, by Major N. A. Qureshi.

15-4-1933. The Diagnosis of acute abdomen, by Dr. Ram Chand Khanna.

29-4-1933. Low back pain, by Dr. Baldev Singh.

20-5-1933. Osteomalacia, by Dr. C. L. Chatrath.

30-9-1933. Diabetes-mellitis, by Dr. Baldev Singh.

14-10-1933. Allergy, by Dr. Baldev Singh.

20-10-1933. Allergy, by Dr. Baldev Singh.

10-11-1933. Pain, by Dr. Sain Das Vohra.

20-12-1933. Calcium, by Dr. Karam Chand Passi.

Dr. Sain Das, Dr. Mohan Lal Pathak, Dr. Chuni Lal Bhatia, Major N. A. Qurashi, Dr. Partap Singh, Dr. Chuni Lal Chatrath, Dr. Monohar Lal Chopra kindly acted as hosts and provided tea and refreshments in the general meetings and Dr. Madan, Major Amir Chand and Dr. Maneckshaw in the executive meetings.

Punjab Medical Council

There was a lot of trouble over the representation in the Punjab Medical Council but eventually what threatened to cause a split in the smooth working of the Association was mended in the end by the unopposed election of C. L. Bola.

Medical Journals

An effort was made to provide latest medical literature by subscribing to and circulating the Lancet and the Indian -Medical Gazette. It is, however, extremely regretable that the members did not realise their responsibility in circulating the papers to one another with the result that some of the members were never able to get the papers regularly.

Sd. A. S. NARULA,
Hony. Secretary,
I. M. A, AMRISAR BRANCH.

INDIAN MEDICAL ASSOCIATION

(Birbhum Medical Association)

Report for 1933—34

The Birbhum medical year began its session by a number of fourteen members in April, 1933—but it saw only nine members in March 1934. The decrease is due to the resignation of Dr. A. N. Ghose, Civil Surgeon, Sub-Asst. Surgeon in Charge of Police Hospital and lady doctor in Charge of local woman hospital. The cause of resignation being that that the Birbhum Medical Association was affiliated to Indian Medical Association. They were requested to reconsider their resignations as advised by the Secretary, India Medical Association, but to no effect. Names of Dr. Satya Roy (now deceased) and Dr. Golak Saha were struck off—they were heavy defaulters inspite of repeated warning. A new recruit it Dr. S. Choudhuri.

The following office bearers were elected :—

Dr. B. Das, M.B., President.
Dr. Kali Gati Banerji, M.B., Secretary.
Dr. B. C. Mitra, in Charge of books and reviews.

Meetings and Socials :—

The number of Meetings held were eight. Each meeting was followed with tea and light refreshment.

Papers readand discussed :—

(*i*) Infantile Liver—by Dr. K. Banerjee.

(*ii*) Causes of blindness in India—by Dr. B. Das.

(*iii*) Recent advances in knowledge and treatment of Leprosy—by Dr. U. N. Ghose.

Dr. J. M. Dasgupta from Calcutta was invited to a tea party in November 1933, when he came here to attend a case. He discussed about the epidemicity of Malaria in Birbhum and how it can be best tackled. We missed the august presence of Sir N. Sircar, M.D.—when we thought of inviting him—as he came to Suri to attend a case for a few hours only.

The following resolutions were passed :—

(*a*) A Free First Aid and Nursing class be opened as early as possible under the auspices of the Association.

(*b*) The President of the Lady Curzon Hospital be requested to reconsider the ban on Lady Doctor—who is not permitted to leave the station over an emergent call—without the permission of the authorities.

INDIAN MEDICAL ASSOCIATION

(Gujranwala Branch)

Report for 1933

The 3rd year of the Association began with Dr. Surendra Nath Budhraja as the President and Dr. Kirpal Singh, as the Secretary for the year.

The year started with 16 members on roll. One resigned in the early half and Dr. Jia Lal, one of enthusiastic members left for England. Two more members have joined the Association and the total being again 16.

The Association met 10 times during the year. There were 6 ordinary and 4 urgent meetings. Two general meetings of all the registered members of Gujranwala were held to discuss Medical Council Bill. There was only one clinical meeting addressed by Dr. Surendra Nath on Pneumonia.

The year opened with a balance of	.. Rs.	13	0	9
Income during the year	.. Rs.	74	0	0
	Rs.	87	0	9
Expenses incurred during the year	.. Rs.	78	1	6
Balance	.. Rs.	8	15	3

The thanks of the Association are due to "Seva Samati" for lending the use of its office and furniture etc.

Sd. KIRPAL SINGH,
Hony. Secretary.

INDIAN MEDICAL ASSOCIATION

(Nagpur Branch)

Report for 1933

During the year the following important resolutions were unanimously passed by the Association :—

(1) The Medical School of C. P. and Berar called Robatra Medical, Nagpur be closed and converted into a Medical College within the course of two years. A deputatuon to be formed to see the Hon'ble the Minister for Medical Establishments and Public Health.

A series of articles are being written in the Local Bi-weekly paper 'Hatunda' to create public opinion in favour of College.

(2) Inspector-General of Civil Hospitals was requested by the Association to nominate one of the members to the Provincial Invalidity Board with success for the Association.

Sd.- K. N. PRADHAN.

INDIAN MEDICAL ASSOCIATION

(Nasik Medical Union)

Report for 1933

The Nasik Medical Union was affiliated to the Indian Medical Association in September, 1932 at the advice of Dr. D. D. Sathaye, who personally visited Nasik on his propaganda work.

The Union had sixteen members on the roll and held its meetings every month. The number of the members has remained the same. A memorandum was sent to the members of the Legislative Assembly regarding the Indian Medical Council Bill. Dr. Shivajurkar, the President, attended the annual session of the Indian Medical Association in Bombay. The Union is doing useful work by creating good feelings and interest in the art of Medical science amongst its members.

Sd.- S. P. GUPTA,

President.

INDIAN MEDICAL ASSOCIATION

(Jalgaon District Branch)

Report for 1933

President	..	Dr. V. L. Nulkar, L.M. & S., Jalgaon.
Vice-President	..	,, R. V. Mhaskar, B.A., M.B.B.S., Amalner.
Secretary	..	,, G. G. Chandrate, L.C.P. &. S., Jalgaon.
Auditor	..	,, N. M. Coeanne, L.C.P. & S., Yawal.
Members	..	,, D. K. Kothurkar, L.C.P.&S.Bhusawal.
		,, S. J. Bengali, L.C.P. & S., Amalner.
		,, V. K. Yellapurkar, L.C.P. &. S., Chopda.

Sub Branches : 1 Jalgaon City, 2 Bhusawal, 3 Amalner, 4, Chopda.

Members :—35 in all.

General Meetings :—The first was held at Amalner on 13-6-33 under the auspices of the Sub-Branches Amalner.

(1) Secretaries read the Reports.

(2) Dr. Nulkar of Jalgaon was elected a member on the Central Council I.M.A.

(3) Dr. R. V. Mhaskar of Amalner read a paper on "Starvation a treatment in certain diseases."

(4) Dr. G. G. Chandratre of Jalgaon read a paper on Ayurved.

The second was held at Bhusawal on 12-11-33 under the auspices of the Sub-Branch Bhusawal.

(1) Secretaries read the Reports.

(2) A proposal to start a "Clinical Journal" was discussed and a committee was appointed to collect the necessary information.

(3) Dr. Mhaskar of Amalner read a paper on "The treatment of Gonorrhoea."

(4) Drs. Mhaskar of Amalner, Nulkar of Jalgaon and Fratel from Bhusawal Railway Hospital spoke on the treatment by Ultra-Violet-Rays. Secretary appealed to all members to attend the Xth India Medical Conference that was held at Bombay.

The meetings were well attended :

Indian Medical Council Bill :—

This Branch in the month of February 1933, despatched appeal to Assembly Members from Bombay Presidency, requesting them either to reject the Bill or to amend it in accordance with the recommendations of I. M. A.

Recommendations submitted to the Central Council :—

(1) This Branch strongly supported a change in the I. M. A. rules which allowed the Government Medical Officer to join the I. M. F.

(2) This Branch informed suggestions on the draft rules of All India Medical Conference.

(3) This Branch whole-heartedly supported an idea to hold a joint session of I. M. A. and All India Licentiates Association at one place and time.

Doctors Chandratre, Mhalas and Mrs. Lagn from Jalgaon ; Deshamane, Chitale and Bangali from Amalner ; Karanne from Yawal and Joshi from Bhusawal attended the Conference as delegates.

In absence of Dr. Nulkar, Dr. Chandrate was elected a member on the Sublect Committee by the above delegates.

STATEMENT OF ACCOUNTS

(From January to December, 1933)

Income	Rs.	A.	P.	Expenditure	Rs.	A.	P.
To Opening Balance	281	7	6	By Postage ..	6	9	3
				Printing	7	6	0
Subscriptions	180	0	0	Affiliation fee	99	0	0
				Salary of Boy	24	0	0
				Propaganda expenses	10	0	0
				Stationary	0	2	6
Total Income	461	7	6	Total Expenditure	137	11	9
				By Balance	323	11	9
	461	7	6		461	7	6

Sd.- G. G. CHANDRATRE,
L.C.P. & S.,
General Secretary.

Examined and found correct.

Sd.- T. E. BHALERAO, S.A.S.,
Auditor,

Dated 27th January, 1934.

Sub-Branches :—(1) JALGAON CITY.

President—Dr. V. L. Nulkar, L.M. & S. Jalgaon.

Secretary—Dr. G. G. Chandratre, L.C.P. & S., Jalgaon.

Six clinical meetings were held. Interesting clinical cases were shown and discussed. Discussions on "Discriminate use of Injection Therapy", and "Haste is Taste in medical science" were held. Medical Journals and magazines are circulated among members.

(2) AMALNER.

President—Dr. R. V. Mhaskar, B.A., M.B.B.S., Amalner.

Secretary—Dr.S.J.Bengali,L.C.P.& S.,Amalner.

Four clinical meetings were held. Interesting clinical cases were shown.

Papers on 1 Treatment of Compound Fracture.

2 „ „ Pernicious Anaemia.

3 Starvation a treatment in certain diseases were read and discussed.

Medical journals and periodicals were circulated among members.

(3) BHUSAWAL.

President—Dr. P. N. Bhagwat, M.B.B.S., Bhusawal.

Secretary—Dr. D. K. Kotherkar, L.C.P. & S., Bhusawal.

Four meetings—1 clinical and 3 ordinary—were held. Interesting clinical cases were shown and discussed. A Committee was appointed to consider a proposal to start a Clinical Laboratory for Bhusawal Practitioners on a small scale. Medical Books were purchased for the Library. Medical journals and periodicals were circulated among members.

EXTRACTS

From Memorandum drawn up by the Meerut Medical Association putting forward the case of the Medical Profession in U. P. agoinst the amended Poison rules as per resolution No. 6 of a meeting of the Executive Committee held on 21st April 1934.

HISTORY OF THE QUESTION

The idea of amending Poison rules originally started as follows :—

The U. P. Medical Council, at the instance of reprsentatives of independent Medical Practitioners, represented to the U. P. Govt. the desirability, in public interest, of suppressing quackery by prohibiting the prescribing and possession of B. P. Poisons and their Pharmaceutical preparations by unqualified persons and suggested amendment of U. P. Medical Act on these lines.

The Govt. agreed to give effect to the above proposals (*viz* suppression of quackery by prohibiting the prescribing and possession of B.P. Poisons by unqualified persons) by suggesting certain amendments in Poison rules in G. O. No. 253 V-157 dated 28th February 1931 instead of amendment of U. P. Medical Act.

The following extracts from G. O. No. 253 V-157 of 28th February 1931 make the point quite clear :—

"(*a*) I am directed to say that the object of the draft bill to amend the U. P. Medical Act is twofold :

(*i*) to prevent persons not possessing registrable medical qualifications from prescribing certain poisonous preparations of the British Pharmacopœia and

(*ii*) to prevent such persons from storing these poisonous preparations for sale except under a licence.

(*b*) The second of these proposals is covered by the Poisons' Act 1919 and the rules made thereunder, and all that is necessary in respect of it is to add these poisons to the schedule in Paragraph 1080 of the Manual of Government Orders.

(*c*) The other proposal can also be given effect to by making a rule under the Poisons' Act that certain specified poisons shall not be sold or dispensed except on prescriptions of qualified medical practitioners.

(*d*) I am to request that a list of all poisons in respect of which it is proposed that action should be taken as suggested above, may be submitted at an early date so that necessary action to notify them under the Poisons' Act may be taken."

Two points are clearly brought out by the above quotation from G. O. No. 253 V-157.

(*a*) The Govt. had no intention of embarrassing qualified medical practitioners in the practice of their profession in any way but were solely moved by a desire to suppress quackery.

(*b*) The list of poisons drawn up by the U. P. Medical Council and incorporated as

item 6 in schedule of poisons (G. O. No. 1273 VI—1776—1930 of 29-9-33) was drawn up exclusively for application against unqualified person *i.e.* persons not possessing registrable qualifications.

The U. P. Government then published draft amendments in U. P. Gazette (G. O. No. 1341 VI—1776—1930) dated 6th February 1933, containing amendments to the rules made under Section 2 of the Poisons Act XII of 1919, for opinion.

As these amendments aimed at serious interference with the practice of his profession by a qualified Medical Practitioner in violation of the spirit of G. O. No. 253 V-157 of 28-2-31, Meerut Medical Association sent its representation dated 21-3-1933 against draft amendments. Similar representations were also sent by other Medical Associations in U. P. such as Benares etc. Even the U. P. Medical Council sent its opinion against them *vide* its resolution No. 8 of 3-11-31. But the U. P. Government in the face of all protests passed these amendments and published them in U. P. Government Gazette of 30-9-33 as G. O. No. 1273 VI-Z776-1930.

This naturally caused a great stir in the medical profession throughout U. P. and protests were sent by a large number of independent medical men from different districts and a large number of Medical Associations and even the U. P. Medical Council—the highest authority in matters medical in U. P. which has a clear official majority—declared that these amendments should be rescinded. But the Government were adamant and refused to reconsider the question.

It is quite inexplicable as to what happened between 28-2-31 (G. O. No. 253 V-157) and 6-2-33 (G. O. No. 1341 VI-1776-1930) which induced the Government to put serious obstacles in the way of qualified medical men by bringing them in the scope of amended rules under the Poisons' Act.

The subject was brought up in the last session of U. P. Legislative Council in the form of questions by Mr. C. Y. Chintamani and R. B. Vikramajit Singh and a cut motion in the budget by K. B. Hafiz Hidayat Hussain and R. B. Vikramjit Singh. The Honorable Minister and Inspector-General Civil Hospitals both in their speeches on the floor of the Council appreciated the difficulties of the qualified Medical Practitioners and promised to reconsider the question which has prompted Meerut Medical Association to put up this memorandum.

2—*Effect of amended rules on qualified Medical Practitioners.*

That the amended Poison rules adversely affect the qualified Medical Practitioners and mean an uncalled-for interference in their work and a serious curtailment of their rights and privileges will be clear from the following :—

(*a*) Note 1 of amendment No. 1 to rule 3 lays down that a Medical Practitioner registered under the U. P. Medical Acts, who directly supplies his own patients with medicines at his own dispensary, where his own prescriptions only and not those of any other Medical Practitioner are dispensed, shall be deemed to be exempt under the provisions of sub-section (1) of section 9 of the Act and shall not be required to take out a licence under the rules. Provided that—

(*i*) The medical practitioner keeps in book form a register of his purchases and sales of the poisons enumerated in the Schedule, one page being used for each poison wherein entries shall be made as such purchase or sale takes place.

(*ii*) The medicines containing these poisons are only supplied on the written order or prescription signed in full by the Medical Practitioner with date.

(*iii*) The full name and the address of the patient is given on the order or prescription.

(*iv*) The registers or the records of purchase and any stock of such drugs and preparations are at all times available for inspection by any duly authorised Excise Inspector.

Note 2 lays down that a Medical Practitioner whether registered under the U. P. Medical Act 1917 or not, who maintains a dispensary wherein not only his own prescriptions to his own patients but also the prescriptions of other Medical Practitioners are dispensed

shall be deemed to sell the medicines to his clients and such medicines shall not contain any of the poisons mentioned in the schedule unless the Medical Practitioner holds a licence for their sale.

3. *Difficulties in following the amended rules in practice.*

There are real practical difficulties in following the amended rules in practice :—

1. The list of B. P. poisons which has been included in the schedule of poisons was specially drawn up for the unqualified Medical Practitioners to prevent them from dabbling in poisons without knowing their correct use and dosage and thus protect the public from injury at their hands and consequently it was made very comprehensive and included nearly every possible poison which may prove a danger in the hands of quacks. This list was ultimately made applicable even to qualified medical men who have expert knowledge to make use of these poisons in curing disease.

The Hon'ble Minister was evidently under a misunderstanding when in reply to Mr. Chintamani's question 4 (k) listed for March 7, 1934, he said that the list was not drawn up originally for unqualified practitioners only.

As the list includes nearly all the poisons and as nearly every prescription contains one or the other poison it becomes such a strain on a busy practitioner in keeping accounts that it is not possible for him to do it conscientiously.

2. Many preparations are required for use in his consulting room and surgery by a Medical Practitioner which could not be included in any prescription for any particular patient—for instance carbolic acid for making lotion for sterilisation, chloroform for making aqua chloroform, atropine sulphthe for making eyedrops etc. This introduces a real difficulty in keeping accounts.

3. That his registers and stock should at all times of day and night be available for inspection is another serious difficulty in following a amended rules and makes an "independent" practitioner very much "dependent" indeed.

4. *The law on the point.*

1. Section 9 (1) of Poisons Act XII of 1919, lays fown :—

"Nothing in this act orin any licence granted or rule made thereunder shall extend to or interfere with anything done in good faith in the exercise of his profession as such by a Medical or Veterinary Practitioner.

This so definitely implies that a Medical Practitioner is practically exempt from provisions of Poisons Act if he does anything in good faith in the exercise of his profession—for instance possession and dispensing of pharmacopeal poisons and their preparations in their therapeutic doses to his patients.

Why this exemption is being taken away from qualified Medical Practitioners as a class by one stroke of the pen is not easy to understand.

2. Section 2 of Poisons Act lays down :—

"Subject to the control of Governor-General in Council the Local Government may by rule regulate, within the whole or any part of the territories under its administration, the possession for sale and the sale whether wholesale or retail of any special poison.

This definitely applies to vendors of poisons and cannot be applied to qualified Medical Practitioners whose case is definitely governed by Sec. 9 (1) and who enjoy a definite exemption for any thing done in good faith in the exercise of their profession, such as possessing and dispensing poisonous preparations of B. P.

The Government cannot be justified, by simply calling dispensing of a therapeutic dose of a B. P. poisonous preparation in a mixture which itself is not poisonous as "sale of poison", in bringing the qualified Medical Practitioners under section 2 of Poisons' Act and dealing with them as vendors of poisons. It certainly could not have been meant by framers of the Poisons Act.

3. Section 6 of Poisons' Act lays down :—

(*a*) "Whoever commits a breach of any rule made under section 2..... shall be punishable,

(1) on a first convinction with imprison ment for a term which may extend to 3 months or with fine which may extend to five hundred rupeess or with both and

(2) on a second or subsequent conviction with imprisonment for a term which may extend to six months or with fine which may extend to one thousand rupees or with both.

To impose unworkable conditions on qualified medical men and then to expose them to severe penalties as given in section 6 is certainly bad law. This makes the penalty for breach of poison rules in England as given by I. G. C. H. in his speech in Council (*i.e.* actual removal of the name from the register) pale into insignificance.

4. Convention of the League of Nations.

The name of League of Nations was brought in by the I. G. C. H. in his speech in the Legislative Council in reply to R. B. Vikramjit Singh and it was sought to be made out that these amended rules were the result of a demand by the League of Nations for control of poisons and narcotic drugs and traffic in them.

The convention of the League of Nations is concerned with narcotic drugs like opium and morphia and dangerous drugs like cocaine. It does not concern itself with the long list of B. P. poisons included as item 6 in schedule of poisons. It will be interesting to note in this connection that the Govt. in G. O. No. 368 XIII—132 of July 23, 1931 have exempted approved practitioners, who dispense their own prescriptions at their dispensaries for their own patients and where no prescriptions except their own are dispensed, from taking out a druggist's licence even for morphia drugs and medical opium with which the League of Nations is specially concerned.

5. Section 9)3) (*b*) provides that the local Govt. may by general or special order either wholly or partially.

(*b*) exclude from the scope of the exemption provided by sub-section (1) any person or class of persons either generally or in respect of any poison specified in the order.

This subsection does give the local Govt. power to exclude any person or class from exemtion provided in Sec. 9 (1) and the Govt. could act under this section in carrying out their object of suppressing quackery with which they started (G. O. No. 253 V-157 of 28-2-31) by excluding unqualified practitioners from benefit of sec. 9 (1).

But surely the Govt. cannot make use of this power in excluding the entire class of qualified Medical Practitioners who possess and dispense poisonous preparations of the B. P. in good faith in the exercise of their profession. This could never have been the meaning of the Section.

6. The Indian Medical Degrees Act VII of 1916 confers a legal privilege on qualified Medical Practitioners to practise medicine, surgery and obstetrics and implies possession by them and administration to their patients of all the medicines contained in the British Pharmacopœia whether poisonous or non-poisonous, because they know how to make use of them for the relief of human suffering. The amended poison rules seek to take away this privilege in an indirect way which is not justified on any principles.

5. *Prayer.*

Amended poison rules should be rescinded so far as they affect Medical Practitioners possessing registrable qualifications :—

(*a*) In note 1. "Medical Practitioner registered under the U. P. Medical Act with U. P. Medical Council" should be replaced by "Medical Practitioner possessing registrable qualifications."

(*b*) Provisos (i) (ii) (iii) and (iv) should be deleted.

(*c*) Note 2 should be deleted—

The object of G. O. No. 253 V—147 of 28-2-31 can be secured by debarring Medical Practitioners not possessing rsgistrable qualifications from possessing and prescribing poisonous preparations ofB.P. as given in Schedule 6 under Section 9 (3) (b)

MEDICAL ASSOCIATIONS, SOCIETIES, ETC.

Medical Societies, Associations, Unions etc. are invited to make use of this Section of the Journal. —Editor

INTERNATIONAL HOSPITAL ASSOCIATION

Post graduate Course 1934 in Swizerland

BASLE

Wednesday, August 15th

Meetings of Study Committees, for which special invitations will be sent.

20.30 : Informal evening at the Schutzengarten as guests of the Basle Medical Association.

Thursday, August 16th

8.00 : Lecture at the Basle Municipal Hospital by Regierungsrat. Dr. F. Aemmer on the reconstruction and extensions to the Hospital.
Visits to above Hospital and to the new Maternity Hospital.
Lunch as guests of the Management of the Maternity Hospital.

17.05: Departure for Zurich from the Basle main railway station (SBB).

ZURICH

Thursday, August 16th

18.33: Arrival from Basle.

23.00: Official Dinner at the Hotel Gotthard as guests of the cantonal authorities of Zurich, followed by Lectures by Messrs. J. Sigg and H. Wiesman on the new hospital buildings in Zurich.

Friday August 17th

8.15: Participants meet at the Hotel Habis-Royal and proceed to visit the Hospital of Neumünster, the psychiatrical Clinic and the Childrens' Hospital.

Lunch and excursion on the Lake of Zurich, as guests of the Municipality and of the Medical Association of Zurich.

16.17: Departure from Thalwil by train to Lucerne.

LUCERNE

Friday, August 17th

16.43: Arrival from Zurich. Dinner at the Hotels.

20.00: Informal evening at the Kursaal as guests of the management of the Kursaal and of the Medical Associations of Lucerne.

Saturday, August 18th

8.30: Lecture at the small hall of the Kongresshaus by Mr. O. Balthasar, on the reconstruction and extensions to the Lucerne Cantonal Hospital. —Visit to this hospital and to the two clinics in Lucerne (St. Anna and Sonnmatt).—Lunch in the Cantonal Hospital as guests of the cantonal authorities of Lucerne.

14.00: Excursion on the lake of Lucerne as guests of the Municipality of Lucerne.

15.30: Departure for Berne via Brünig by motor-coach, visit of the Kursaal at Interlaken.

Saturday, August 18th

19.30: Arrival from Lucerne.
Dinner at the Hotels.

Sunday. August 19th.

9.30: Official opening of the Post-graduate Course at the University.
Address by Herr Bundesrat Dr. A. Meyer.
Lectures

1. H. Prälat Dr. Kreutz, Freiburg i. Br., Präsident der internationalen Studienkommission für Spitalseelsorge :
"Religiöse Grundkräfte in der Krankenpflege."
2. Monsieur le Pasteur Vuilleumier, Lausanne :
"Le rôle de la charité chrétienne dans les soins aux malades".

3. An English speaking representative of the International Council of Nurses, Geneva :
"The personality of the nurse".
Discussion.

14.00: Official Lunch at the Kursaal Schänzli, participants will be guests of the Bernese Authorities.

16.00: Drive through the town and to Gurten, a light supper will be provided by the Municipality of Berne. Evening free.

Monday, August 20th

9.00: *Lectures* at the University.
1. H. Verwalter Paul Manz, Vize-Präsident der Veska, Frauenklinik Zurich :
"Technik, Einrichtung und Organisation im Krankenhaus".
2. Dr. Ethel Cassie, Senior Assistant Medical Officer of Heath for Maternity and Child Welfare, Bitmingham :
"Ante-natal care".
3. Conseiller d'Etat Prof. Dr. H. Mouttet, Berne :
"L'Hospitalisation des étrangers".
Discussion.

13.00: Lunch at the Hotels.

15.00: Visit of the University (Bühlstrasse 20, Tramway No. 1)
Talk by Professor Dettling, Direktor des gerichtl. med. Institutes.

16.00: Visit of the Inselspital (Freiburgstrasse 18, Tramway No. 1).

18.00: Refreshments provided by the Management of the Inselspital.
Meetings of Committees.

Tuesday, August 21st

9.00: *Lectures* at the University.
1. M. H. Dubal, Directeur de l'Hopital Cantonal, Genéve :
"Les possibilités d'économie dans l'administration des hopitaux".
2. Dr. Cavaillon, Secrétaire général de l'Union contre le Péril vénérien, Paris :
"Les mesures d'hygiène et du service social dans le combat contre le péril vénérien".
3. H. Prof. O. R. Salvisberg, Eidg. Technische Hochschule, Zurich :
"Grundlagen der Gestaltung im Krankenhausbau".
4. H. Prof. Dr. F. de Quervain, Direktor der Chirurg. Klinik, Bern :
" Wann operiert der Chirurg nicht " ?
Discussion.

13.00: Lunch at the Hotels.

15.00: Participants meet at the Bundesplatz
Visit to the Children's Hospital Elfenau, conducted by Dr. Tobler, privatdocent.

16.30: Visit to the Maternity Hospital, conducted by Prof. Dr. Giuggisberg.

18.00: Refreshments provided by the management of the Maternity Hospital.
Meetings of Study Committees.

Wednesday, August 22nd

9.00: *Lectures* at the University.
1. Professore Dr. Alberto Lutrario, Roma :
"La Tubercolose en Italie".
2. H. Dr. L. J. Zielstra, Direktor des Algemeen Provinciaal Stads- en Academisch Ziekenhuis, Groningen :
"Arbeitstherapie".
Discussion.

13.00: Lunch at the Hotels.

14.20: Departure for Aigle-Leysin.

LEYSIN

Wednesday, August 22nd

17.50: Arrival from Berne. Dinner at the Hotels.

20.30: Informal evening in the large hall of the Clinic "Les Frênes".
Cinematographic films showing clinical work-shops and open-air schools.

Thursday, August 23rd

9.00: Participants meet at the work-shops of the clinic.
Lecture by Professor Dr. Rollier.
Visits.

13.00: Lunch as guests of the Association of Heliotherapeutical Establishments.

16.00: Visit to the University Sanatorium. Conclusion of Post-graduate Course. For continuation of Study trip, see special programme.

Special Offer

Many Railways have agreed to allow participants in the Course a discount of 50% on single and return tickets during the fortnight following the course)i.e. from August 23rd to September 5th). To obtain the discount, the tickets for the course must be produced.

Tarif

SECTION A: PRELIMINARY MEETINGS AND LEOTURES, AUGUST 15TH-18TH.

Ticket 90 Swiss francs, including:

a) Fees for Lectures and visits.

b) Room (15th to 17th August—3 nights) and meals in Basle, Zurich and Lucerne Admission to Casino in Lucerne.

c) Railway Journey (2nd class) Basle-Zurich and Lucerne.
Motor-coach Lucerne-Brunig-Berne.
Steamer excursion on the Lakes of Zurich and Lucerne.
Bus fares to and from institutions visited.

SECTION B: SECOND POST-GRADUATE COURSE OF THE I. H. A. AUGUST 19TH-23RD.

Ticket 150 Swiss francs, including:

a) Fees for Lectures and visits.

b) Official Lunch (wine included) in Berne.

c) Room (18th to 22nd August—5 nights) and meals in Berne and Leysin.

d) Single journey Berne-Aigle. Return journey Aigle-Leysin. Ascent of the Gurten. Bus fares to and from institutions visited.

SECTION C: STUDY TRIP TO THE CANTON OF GRISONS, AUGUST, 23RD-28TH.

DAY TIOKETS AND TICKETS FOR THE OFFICIAL LUNCH (BERNE) ONLY

As alternatives to the above inclusive tickets tickets for separate days can be purchased daily. These tickets cover fees for lecturesa nd visits only, exclusive of all bus fares. Purchasers of day tickets for Sunday, 19th August, can obtain tickets for the official lunch(Price 5 Swiss francs including wine) on application to the Kursaal Schanzli at Berne. This application must be received not later than Saturday, August 18th Participants who wish to bring members of their family to the official lunch at Berne can obtain tickets for the lunch only in the same way.

INSTITUT FÜR SCHIFFS-UND TROPEN-KRANKHEITEN ZU HUMBURG

In 1934 the following courses have been arranged.

1 *In Spanish language from* 30 *Jnly to* 20 *August.*

(*a*) Tropical Medicine and medical parasitology.

(*b*) Chemical methods in Clinical Examination.

(*c*) Filtrable virus and the methods of culture.

(*d*) Histopathological Demonstrations.

Lecturers:—Professors Mühlens, Martini, Nauck, Reichenow, Sonnenschein und Weise.

2 On Tropical Hygiene, Tropical Medicine, Exotic Pathology and medical Parasitology.
Lectures, Demonstrations, Clinical demonstrations, Etiology, infection, pathological anatomy and control of Tropical diseases.
Protozoology, Helminthology, Entomology, Tropical Cattle diseases. Ship's and Tropical Hygiene. (Facultative Final Examination (Diploma) for qualified doctors.

Lecturers:—Professors, Nocht, Mühlens, Giemsa, Martini, Mayer, Nauck, Paschen, Reichenow, Sannemann, Sonnenschein, Vogel, Weise.

Accommodations for advanced students available in all departments of the Institute.

Communication should be directed to Institut für Schiffs und Tropenkrankheiten, Hamburg 4, Bernhard Nocht-Strasse 74.

PUNJAB MEDICAL COUNCIL

The following is a summary of the proceedings of the Punjab Medical Council held on the 14th April, 1934, at 11 A.M.

1. Notifications regarding the appointment of following members were read and recorded :—

Col. C. H. Reinhold as President.
Lt. Col. T. A. Hughes.
K. B. Dr. Khawja Abdul Rahman.

2. It was decided to approach Government with the request that a Register for qualified Dispensers and Dressers be opened on the lines of the Punjab Medical Register.

3. It was decided that the registered medical practioners should not be allowed to associate their names with firms of Chemists and Druggists.

4. Court judgments in the various cases conducted against bogus medical practitioners were read and recorded.

5. A letter from the General Secretary, All India Medical Licentiates Association requesting that increased repressentation be given to Licentiates on the Punjab Medical Council was considered and it was decided that upto date enquiries be made from other Provincial Medical Councils in India in regard to the number of Licentiates who are members of the various Provincial Medical Councils and the replies received be placed before the next meeting.

PRONINCIAL MEDICAL SERVICE

Its Condition and Future

[*Extract from address delivered by Capt.K. N. Goyal, P.M.S. before the Fifteenth Annual Conference of the Indian Provincial Medical Service Association, U. P. Branch held at Lucknow on 25th Febraary*, 1934.]

Past History

My knowledge in this connection is derived mostly from what I have heard about it from my senior colleagues. I do not think our predecessors or even our ancestors, the *Hakims* and *Vaids* of old, had any such inglorious beginning as the Surgeon Generals in England have recently been reported to have had as barbers in the Army on a pittance of £20/- a year. So far as I am aware the Provincial Medical Service was started as far back as 1857-60 when *the Government of India was taken over by the British Crown from the East India Company.* Before the Mutiny British doctors used to come as Ship Surgeons and later as Military Surgeons. These were appointed as Assistant Surgeons under them. The present Provincial Subordinate Medical Service officers were then called Hospital Assistants. Later the rank of Assistant Surgeons was abolished from the I. M. S. and relegated to Indian Subordinate Medical Department while the grade of Sub-Assistant Surgeons was replaced by Civil Assistant Surgeons and the designation of Sub-Assistant Surgeons was given to the hospital assistants.

There were 3 grades of Civil Assistant Surgeons viz. Rs. 100/-, 150/- and 200/-. The higher grade was obtained by passing septinneal examinations after 7 years' service in each grade. Later about 1903 a senior grade was added on Rs. 300/-. Still later the scale of pay was raised from Rs. 100/- to 130/- rising to 165/-, 200/- and 300/-. A couple of Civil Surgeoncies of small districts were first thrown open to Indians on Rs. 350/—30—500/-.

The Assistant Surgeons of old were privileged persons and had glorious days. Privileged because their selection to service was a matter of course owing to the small number of candidates then available and who were deputed by the Inspector General of Civil Hospitals for study at Lahore Medical College and who were consequently taken into service immediately on their completing the course of studies at Lahore. Western Medical Science in those days did not appeal much to Indian minds and few students were forthcoming to study Medicine. The Government therefore had to grant scholarships and provide other facilities to medical students to encourage educated young men to take up the study of Western Medical Science. Educational qualifications too had to be kept low for admission to Medical College. The Health department then was a side show of the Medical line and new entrants into service were generally first appointed on the Health side as Plague or Malaria officers for research work.

They had a glorious time because they were masters of all they surveyed and there was none to dispute their rights. They had a large scope of private practice as competition was practically nil. An old doctor once told me that

in his days elephants and jewels used to be given as presents to doctors besides their usual fees and I had to remind him that his was the golden age while we lived in the Iron age, that elephants and jewels might have been glorious of the past while we could hardly expect even full payment of our dues. Crossing the seas in those days was considered to be a sacrilege but the plucky few who could manage to get even an ordinary British qualification then rose to eminence in service for want of a competition. In spite of the aforesaid privilege the old Civil Assistant Surgeons had certain disadvantages as every bright side has its dark phase. Most of them had to be contented with a life of subordination as the Civil Surgeons' grade was then the sole monopoly of the whites. Low fees and most of the malpractices which still exist are probably relics of the past. The extent of income in those sweet old days can easily be guessed when we hear of several old assistant surgeons refusing to get a promotion to Civil Surgeon's grade and leaving fortunes behind. The opening of King George's Medical College at Lucknow in 1911 and the Great World War changed conditions rapidly. The increased output of Medical Graduate has given an impetus to the growth of the Independent Medical profession in this Province which formerly was exclusively the monopoly of a few emigrants from Bengal. During the war a large majority of the fresh graduates were recruited as Temporary Commissioned officers in the I. M. S. A few of them got permanent Commissions, a fair number got into the P. M. S. and the rest were discharged to earn an independent living. Another great step forward was the introduction of the time scale of pay rising from 250/- to 500/- by annual increments of Rs. 12/8'- with 2 effeciency bars after every 7 years. The system of septinneal examination which was degrading and useless was replaced by the present Post Graduate training. Our designation was changed from Civil Assistant Surgeon to Medical Officers in charge but later modified to Medical officer in immediate charge perhaps to give more power of control to the Civil Suegeons and to remove an ambiguity between 2 officers which had begun to arise in matters of the internal administration of hospitals. The cadre of Indian Civil Surgeons and medical officers also gradually increased. Health and Sanitary work which formed a part of the duties of Civil Surgeons was separated and the present Health department evolved with its own Director as its head. Further development has taken place in this department bythe transfer of vaccination work from the control of Civil Surgeons and evolution of the District Health Scheme for which Col. Dunn. I.M.S., the late Director is to be thanked otherwise the health side of the Medical department used to be a poor show. Besides the scheme has also provided bread and butter for a large number of medical men who would otherwisebe struggling hard for existence and swelling the ranks of private practitioners. The next great advance made in our services was the foundation of the Indian Provincial Medical Service Association for which Rai Bahadur Dr.P.Pant,P.M.S civil Surgeon is to be thanked Before the inception of this Association P. M. S. officers were discrete and heterogenous entities with no solidarity among themselves and without having much chance of a united action. What the Association has done for us we all know specially within recent years through the combined efforts of our able secretaries the Guptas.

As already stated quite a large number of Medical officers of our service both permanent and temporary had volunteered their services for the Military in response to the clarion call and high hopes were entertained at the time that on their return to the civil they would be given some special privileges but they were disillusioned and disappointed in the end when they were treated like others who had lagged behind to reap rich harvests. Our repeated requests proved futile and we had to bury our hopes in oblivion. Our friends at home resented our getting any preference over them which exemplifies the spirit of co-operation among the members of our service at the time. One of the main objects of our Association was to create the spirit of co-operation and mutual goodwill amongst us but I regret to say we are yet far from our goal and the Association has failed to bridge over our internal differences. To my mind no reform is possible unless we keep a common ideal before us and work it up in unison with one another as equal members of a common fraternity. That we need an improvement in our present condition nobody can gainsay

and it is the duty of every one of us to devise ways and means for the same.

PRESENT CONDITION OF THE PROVINCIAL MEDICAL SERVICE.

To draw a true picture of service as it exists today we shall have to study our environments which may be classified under the following heads :—

I. Internal—

(1) Relations of Medical Officers and Civil Surgeons.
(2) Inters relations of P. M. S. officers.
(3) Relations with P. S. M. S. officers.
(4) Relations with hospital staff.
(5) Relations with hospital patients.

II. External—

(1) Relations with private medical practitioners.
(2) Relations of P. M. S. officers with office clerks.
(3) Relations of P. M. S. Officers with District officials.
(4) Relations of P. M. S. officers with the members of the Municipal and district boards.
(5) Relations of P. M. S. officers with Public at large. A critical study of the above environments goes to show that we are neither liked by others around us, nor we are friendly with each other which is a deplorable situation. In my humble opinion the privilege of private practice is responsible for most of our ills and is a great impediment in the way of our future advancement. This privilege is a distinctive feature of all medical services because all these services are less paid than other sister services. In days gone by this privilege had to be given because the independant medical profession was not born in this country and without this privilege the interests of Public would have suffered. In view of this consideration the scale of pay of medical services was kept lower than other services. Now with the growth of independent medical profession this contingency does not exist and it would be in the fitness of things if medical men in service are debarred from general private practice and their pay is increased to bring them on a level with other sister services. This will improve the efficiency of work on hospitals, remove internal jealousy and infuse a spirit for research which for want of due encouragement is sadly lacking. The mercenary spirit must go if we care for unity and real public good. I shall now deal with the duties of P. M. S. officers and prove that they have no scope for private practice if their work is to be done conscienceiusly. The duties may be divided under 3 heads :—

(1) Daily routine work.
(2) Casual duties.
(3) Additional duties.

I. The daily routine work of medical officers consists of :—

A. Morning duties.
(*a*) Indoor round. .. i Sanitation of hospital.
.. ii General round in wards.
..iii Special dressings.
(*b*) Out-patients .. i General outdoor work.
..ii Special—Ear, Nose, Throat and Eye cases.
(*c*) Laboratory work.
(*s*) Operations.
(*e*) Office work—registers and correspondence.

B. Evening duty.
(*a*) Out-door work.
(*b*) Indoor round.

II. Casual duties.
(*a*) Medico-legal work.
(*b*) Attendance on Government servants.
(*c*) Court evidence.
(*d*) Medical and surgical emergencies.

III. Additional duties.
(*a*) Jail work and Police.
(*b*) Postmortems.
(*c*) Official calls.
(*d*) Civil Surgeon's office.
(*e*) Insurance work.

According to the Medical Manual the regular hospital time is full 5 hours in the morning and one hour in the evening leaving casual, emergent and additional duties to be accommodated during the day according to the nature of work. Our working time table in an average hospital with minimum allotment of time will run

thus if we care to be sincere in the discharge of our duties :—

Sanitation of hospitals	½ hour.
General round in wards	1 hour.
Special dressing	½ hour.
Out-patients	1½ hour.
Ear, nose and eye etc. including dark room	½ hour.
Laboratory work	½ hour.
Operations	1 hour.
Office work	½ hour.
Total	6 hours—

5 regular hours plus 1 hr. extra.

In reality it should amount to much more if we include all the other duties of Medical Officer, casual and additional and also make allowance for the late coming of our Civil Surgeons some of whom do not seem to realize the difficulties of medical officers and forget if there is a prescribed time limit for hospitals. They work their own time fable independantly according to their own convenience and expect the medical officers to keep pace with them which extends the hospital time by another one hour. In other words a medical officer in an average hospital must work for 7 hours in the morning if hospital duties are to be carried out conscienciously and also loyalty to the Civil Surgeon has to be considered. We thus get 2—3 hours in the afternoon for lunch and recreation and again in the evening we have got to attend for one hour. Theoretically we might say, as my critics do say, that these few hours could be utilised for private practice but it would be physically impossible to go on working without any foodor rest. If we scrutinise the duties of Civil Surgeons which include Jail, Police, Medicolegal work, office work, official calls, court attendance and operations etc., we find the same impracticability for private practice. I therefore fail to understand where is the fair scope for private practice unless of course medical officers relax their attention in the proper discharge of their duties which under the present system they generally do to keep their body and soul together but which evidently must lead to corruption, jealousy and other evils. In the struggle for private practice the poor classes must naturally suffer otherwise if equal attention is to be paid to all classes of patients in hospitals there is little time available for general private practice. The Civil Surgeons not being bound down by any rigid limitations can engage in private practice with impunity while the poor assistants supposed to be made of inferior stuff are not only bound down by the rules of the Medical Manual which are flung in their faces whenever they are in the wrong but they are also expected to satisfy the individual whims of their angels of fate and suffer in silence. If they are tactless and dare to protest against any high-handedness, up goes a report against them either in the annual confidential if the effect desired is not immediate, or by a D. O. letter to get rid of the offending assistant immediately. Representations and memorials to rectify the injustice done generally prove futile as the Government always sides with the superior officer inspite of the previous good services of the condemned assistant. Such being the condition s of service I am in a dilemma as what course to adopt. I think it is better to suffer in a right cause than to be a hypocrite. My worthy critics have failed to suggest an alternative to improve the condition of our service but they should however remember that construction of a new edifice on an old site is only possible when the place is cleared of all rotten debris which might even mean demolition of the old structure. I beg to assure my colleagues senior and junior that my spirit is only reformatory in the best interests of our service as a whole, medical profession in general and the suffering humanity at large and I cannot have the audacity of playing the role of a dictator as some think about me. Having cast the horoscope of the P. M. S. I have tried to describe its past and present conditions and I shall now try to delineate its future as briefly as possible.

There are 3 possibilities that I can think of :—

(1) Continuation of the present service with private practice clipped, scale of pay reduced and all its present defects in an exaggerared form.

(2) Abolition of the present service and its replacement by some other system as a set of Honorary or stipendary surgeons and physicians.

(3) Continuation of service with improved propsects but private practice debarred.

I do not think the present conditions can last very long and patchwork repairs are bound to break down under increasing pressure from without and undermining influences from within. No structure in the world can withstand a double pressure of this kind. This will lead to possibility No. 2 viz., abolition of the present service and its replacement by some other system. One such institution is already under trial at Allahabad, the Seva Samiti Hospital, and if it succeeds it will give an impetus to the growth of similar institutions all over the Province. For official work the Government will probably appoint a Police Surgeon while medical and surgical work of the populace will be transferred to private medical practitioners who will work part time in hospitals on a fixed honorarium. Be it noted that private medical practitioners of future will not be quacks or with low qualifications as at present but with the growth of higher medical education they will be highly qualified doctors specialised in different branches of medical science.

To avoid this catastrophe and strangulation of the P. M. S. we should try to bring about the third possibility for which I suggest the following measures :—

(1) General private practice to be stopped by medical officers of all shades and consulting practice only to be allowed during spare hours to bring all medical officers on an equal footing and encourage them to develop hospitals to fullest extent.

(2) The system of charging fees in hospitals to be abolished except the prescribed operation fees from well-to-do patients to increase the popularity of hospitals.

(3) Requesting the Government to effect the above by suitable means and to increase scales of pay of all medical men in due course to bring them on a level with other sister services and enjoy equal privileges.

(4) Provision of suitable facilities for research work in every hospital, a start to be made with divisional hospitals.

(5) All divisional hospitals to be fitted with X-Ray and apparatus for Electrical treatment.

(6) Appointment of 2 medical officers, a senior and junior, in every district hospital to improve the efficiency of work.

(7) Compounders' class to be improved. Matriculates to be recruited, proper training at some educational centre to be given and the scale of pay to be increased. The present system of recruiting men from low strata of society with low qualifications leads to demoralisation of hospitals.

(8) Appointment of a qualified staff nurse for operation theatre, a store keeper, an office clerk, a peon and male nurses in every district hospitals.

(9) The duties of Civil Surgeon and Medical Officer to be regularly defined to avoid a clash between the two and an open circular to be issued to all Civil Surgeons to give due coaching to their assistants in surgical, medico-legal and Jail work. Co-operation between the 2 classes of officers and due regard for each other are very necessary for smooth working of hospitals.

(10) The present Post-Graduate course to be so modified as to suit individual aptitudes. The present system of nibbling in all subjects is good for nothing. When special courses taken abroad are considered to be good enough to cross the efficiency bar and lecturers of medical schools are exempted from the Post Graduate course there is no reason why special courses taken in India should not achieve the same object.

(11) All stations in the Province to be properly graded and allotted according to seniority and merit irrespective of racial discrimination or recommendation by underhand agencies.

(12) A Civil Medical Service to be instituted and no recruitment made from the Military side. The recruitment to be made by open competition and not by selection as at present.

(13) No reservation of stations to be made for a particular class like the I. M. S. The recent practice of recruiting officers fresh from the Military without any experience of Civil Work to be abolished.

(14) The post of Deputy Inspector General to be created at an early date to give a helping hand to the busy Inspector General of Civil Hospitals and avoid the supremacy of office clerks which has led to corruption in the rank.

(15) A senior medical officer to be appointed as under-secretary to Government to do us justice higher up.

(16) A retired Civil Surgeon to be elected as member of the Legislative Council to represent our cause in the Council which remains absolutely unrepresented at present. With the above alterations and improvements coupled with due sacrifice on our part much of the dark alouds can be removed and the future outlook brightened to save us from the impending strangulation and annihilation. We must remember that the Government has no sympathy for us, the public not only takes no interest in our affairs but public opinion is hostile to us, and disaffection and jealousy are rampant in our ranks. We shall have to work up our salvation in the reverse order if we want to leave a good legacy behind for the future generations. We must unite first by all possible means, win public support next by courteous ways and enroll Government sympathy last by our devotion to duty, and success in our ambitions is sure to achieve.

MEDICAL NOTES AND NEWS

[Items of news and notes of general interest to the profession for incorporation in this section from the members of the profession will be greatly appreciated—EDITOR]

EXTRACTS FROM THE VITAL STATISTICS OF THE DELHI MUNICIPALITY FOR THE MONTH OF APRIL, 1934.

BIRTHS

The total numbers of births during the month under review was 970 as compared with 910 in the corresponding month of the preceding year. The birth rate was 33.80 against 31.42.

DEATHS

The total number of deaths during the month under report was 807 as compared with 907 in the corresponding month of the previous year. The death rate was 27.86 against 31.22.

INFANTILE MORTALITY

The total numbers of deaths among infants under the age of 1 year was 275 as compared with 326 in the corresponding month of the previous year. The infantile mortality rate was 280.89 against 358.24.

CEREBRO-SPINAL FEVER

In the last monthly review there was a detailed note on the prevalence of cerebro-spinal fever. During the month under review, there were 40 deaths against 13 in the last year. This disease has taken a pandemic aspect and is found particularly throughout the whole country. Prophylatic vaccine against cerebro-spinal fever has just been received and will be given a trial and its results will be reported upon later.

PLAGUE AND CHOLERA

Although both these diseases have been appreciably present in cities of neighbouring provinces, Delhi city has been fortunate in having remained free from these scourges except for one imported case of plague.

BOGUS M.D.

On 31st May 1934, City Magistrate, Lahore, pronounced judgment in which one Dr. Anwar Hussain Arif Asfani, of Misri Shah, Lahore, was prosecuted under the Indian Medical Degrees Act. The accused in this case styled himself as "M.D." and "Surgeon by London", although he did not receive the degree from a recognised University mentioned in the Schedule attached to the Indian Medical Degrees Act. The accused has been convicted and sentenced to pay a fine of Rs. 150/- or in default to undergo imprisonment for three months. A number of prosecutions appertaining to bogus doctors are still pending in various courts, Punjab Medical Council being the complainant in all cases.

BOOK REVIEW

SEX-DIFFICULTIES IN THE MALE, —*By Kenneth M. Walker, F.R.C.S. New and Revised Edition*, 1934 : *Pp.* 254. *Price Rs.* 3/12. Jonathan Cape, London,

Distributors in India :—

Butterworth & Co., (India), Ltd., Calcutta.

The subject of sex has been much more tabooed in this country that any where else and yet sex-crimes, perversions and venereal diseases are not as infrequent here as one would think. Not to speak of the lay public even the students of Medicine in this country never had the opportunity of getting any knowledge of the Physiology and Pathology of Sex. Queer ideas prevail with the consequence that where qualified medical men fail to give any advice or relief all sorts of charlatans flourish and exploit the ignorance of the public.

This little volume is intended for practitioners who may have occasion to advise their patients who are in difficulties. Written in a plain language, avoiding technical terms and that touch of erotic expressions which most books on sexology have, this book, though primarily intended for doctors, may be read with profit even by the laity.

G. M.

ERRATUM

Page	520	in the foot-note	in place of	"Dr. B. Dr. Mukharjee",	please read	"Dr. B. D. Mukherjee".
„	539	„ line 35	„	"OTO-RHINOH"	please read	"OTO-RHINO"
„	548	„ „ 3	„	"Report for 1934"	„	"Report for 1933"

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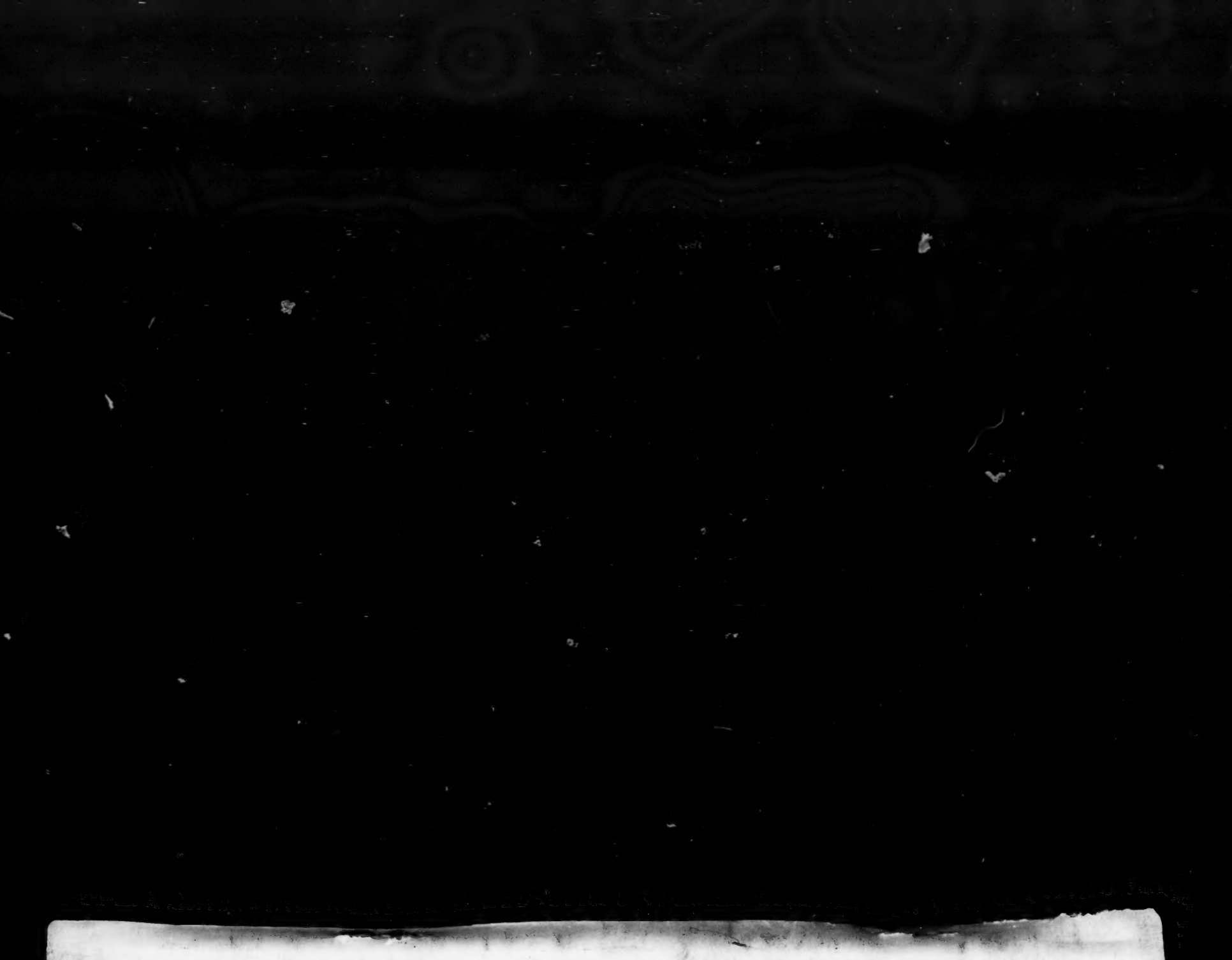
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